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ORIGINAL ARTICLES.

ALCOHOL AS FOOD.[1]

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ALCOHOL and alcoholic fluids have been the subject of so many studies and of so many essays that it threatens to be somewhat difficult to find a new point of view, until additional facts are discovered. Yet I shall venture upon a line of reasoning that may perhaps place the matter in a somewhat different light from that usually presented, though basing my argument upon facts that are only in part at least comparatively new.

Does alcohol, when taken into the healthy body in moderate quantities, serve as food, *i.e.*, can it be oxidized with liberation of its energy in the form of heat or work, and can it play the part of a true non-nitrogenous food in replacing the fat and carbohydrate of the daily diet? In the literature of the subject we find many answers to these questions, but if we confine our attention to the results obtained by the more accurate methods of recent days, especially the painstaking results reported by Prof. Atwater and his coworkers in this country, Rosemann and Rosenfeld in Germany, and many others, there seems to be no doubt that alcohol when taken in moderate doses can be oxidized in the body and its energy made available for the needs of the system. It is of course understood that this statement does not carry with it the idea that alcohol is to be recommended for its food value, or that prior to its oxidation it may not exert some physiological effect the reverse of beneficial. Still, there is no question to-day that alcohol can be burned in the body and that the system may derive energy therefrom, as in the oxidation of sugar or fat.

It is to be noted, however, that in the preceding statements "moderate doses of alcohol" are referred to, for it is well understood that when alcohol is introduced in compartively large quantities, considerable of the alcohol is excreted unchanged through the lungs and through the kidneys, implying quite plainly that the body cannot conveniently handle large quantities. Further, when comparatively large amounts of alcohol are taken, not only is alcohol itself excreted, but there may appear in the urine and in the expired air aldehyde and acetic acid, products of the partial oxidation of the alcohol, indicative of the incomplete combustion of the ingested foodstuff.

[1] Read at the New York Academy of Medicine, February 20, 1905.

In view of these facts, we need to know what is meant by moderate quantities, that we may form some estimate of the extent to which alcohol can be burned in the body. If the system is capable of oxidizing only a small fraction of a small dose of alcohol, leaving the bulk of the substance to be excreted unchanged, then obviously the food value of alcohol must be rated very low. In an article, published recently in the *Lancet*,[1] Dr. W. H. Goddard records some experiments made to determine the amounts of alcohol that can be taken into the system and be practically all burned up, *i.e.*, without any appreciable amount being excreted unchanged, or only partially oxidized. His experiments were conducted on dogs, and appear to have been most carefully planned. I will give briefly the results of two experiments:

A dog weighing 12.4 kilograms, after a twenty-four hours' fast, was given 16 grams of absolute ethyl alcohol, mixed with an equal amount of pure water. The animal was then placed in a respiration chamber for five and a quarter hours and the expired air collected. This air on analysis was found to contain 2.14 per cent. of the alcohol administered, but no aldehyde. The urine, drawn by a catheter, was found to contain 2.89 per cent. of the alcohol introduced. The animal being killed, no alcohol or oxidation product of the alcohol could be detected in the organs or tissues.

When 32 grams of absolute alcohol were given to a dog of 12.1 kilograms body-weight, the expired air collected for nine and one-quarter hours contained 2.23 per cent. of the alcohol administered, and in addition there was present aldehyde equal to 2.2 per cent. of the alcohol introduced. Further, the urine contained alcohol to the amount of 2.21 per cent. of the alcohol introduced into the body, while the tissues of the animal were found to contain a mere trace only. In the liver, however, acetic acid was present, equal in amount to 2.1 grams of alcohol, corresponding to 6.5 per cent. of the original alcohol. Increase in the dosage of alcohol was followed by a corresponding diminution in the extent of its oxidation.

From these data it is evident that, with the introduction of 16 grams of absolute alcohol there was complete oxidation of 95 per cent. of the alcohol, showing an excellent utilization of the substance, while with an introduction of 32 grams of alcohol 13.2 per cent. escaped complete oxidation, showing a utilization of only 86.8 per cent. of the alcohol introduced. Dr. Goddard, in his conclusions, states that when alcohol to the amount of 1/750th part of the body-weight of

[1] The Physiological Action of Ethyl Alcohol considered as a Food: A Research. The Lancet, Vol. CLXVII, No. 4234, p. 1132.

the animal is given, nearly 95 per cent. of the alcohol is made use of as food. Again, he states "*in small doses only* alcohol is most undoubtedly a food."

It is of course to be remembered that these experiments were conducted upon dogs, and we cannot be quite certain that alcohol would undergo oxidation at exactly the same rate per kilo of body-weight in man. But, assuming that such is the case, we may query whether a utilization—up to 95 per cent.—of 16 grams of absolute alcohol per 12.4 kilograms of body tissue is such a poor utilization as would at first glance appear, or whether such a dosage, when figured to the average body-weight of man would prove so very small, especially if calculated in terms of a strong alcoholic beverage like whisky, or a still milder alcoholic fluid, like wine.

The dog weighing 12.4 kilograms oxidized completely in five and one-fourth hours 95 per cent. of 16 grams of absolute alcohol, *i.e.*, 15.2 grams. This means that 1.2 grams of absolute alcohol per kilo of body-weight can be completely oxidized. Therefore, a man of 70 kilograms body-weight (about 160 pounds) would oxidize completely 84 grams of absolute alcohol under like conditions. The strongest whisky contains, as a rule, not more than 50 per cent. of absolute alcohol. Consequently, the above quantity of alcohol would correspond to at least 168 grams of pure whisky. Further, it is to be recalled that in these experiments the absolute alcohol given was diluted with an equal amount of water and introduced at one time. In other words, if this is a safe line of reasoning, the tissues and organs of a healthy man of 160 pounds body-weight are capable of oxidizing the alcohol of 168 grams of pure whisky (even if taken at one time) completely into carbonic acid and water in the course of a few hours, like any other non-nitrogenous foodstuff. This amount of whisky equals 175 cubic centimeters or approximately six ounces, and would fill two large wine glasses. Obviously, such a dosage of whisky, if taken at one time, would produce uncomfortable results with the ordinary individual, but the illustration will serve to indicate the degree to which alcohol can be oxidized in the body and thus serve as fuel. It must be remembered, however, that the experiments which we are using as the basis of our calculation were made upon dogs in a fasting condition, and further, they had been previously purged, so that their tissues were in a semi-hungry condition, and consequently they were doubtless able to utilize a larger proportion of alcohol..

These figures certainly indicate that the body is quite capable of burning and using as food fairly large amounts of alcohol, or, perhaps we should say, of alcoholic drinks. If we apply this same line of reasoning to wine, say of the claret type (claret containing 10 per cent. of alcohol), we find that a man of 160 pounds body-weight would be able to oxidize completely the alcohol contained in approximately one quart of wine of this type.

These general conclusions are essentially in accord with the results of the experiments reported by Professors Atwater and Benedict on men in the respiration calorimeter, where 72 grams of absolute alcohol were given in the course of the day, *i.e.*, six ounces of whisky, the only difference being that the alcoholic fluid was taken in six equal doses, three with meals and three between meals. On an average, Prof. Atwater found that over 98 per cent. of the alcohol so introduced was burned or oxidized, thus showing indeed even a better utilization than the body ordinarily manifests toward the carbohydrates or fats of the daily diet.

Again, we can make this matter somewhat clearer perhaps by a comparison of the relative value as fuel of alcohol and carbohydrate, such as sugar or starch. One gram of absolute alcohol yields the same amount of energy as 1.73 grams of carbohydrate, or, in other words, 4 grams of alcohol are isodynamic with 7 grams of sugar or starch. Consequently, it would appear that the oxidation of 84 grams of absolute alcohol or 168 grams of whisky is the equivalent of the oxidation of 147 grams of pure sugar or starch, or about one-third of a pound, *i.e.*, would yield the same amount of energy in the form of heat or work and with less expenditure of energy on the part of the body in accomplishing it.

This conclusion, however, may not be strictly correct in the sense that the above quantity of alcohol is the exact equivalent of the isodynamic quantity of carbohydrate in the body of the healthy man, or would serve the purpose of food in the same degree. We may indeed take different positions as to the proper definition of a food. The physiologist is ordinarily inclined to say that food serves two distinct purposes, viz., to build up and repair the tissues of the body and to yield energy. To build up muscle tissue (the nitrogenous part of the tissue) only proteid food is available. Starch and fat even have no power in this respect, except so far as they may protect the combustion of proteid. Carbohydrates and fat, however, are the chief reliance of the body as sources of energy, and as a consequent protection for the more essential proteid or albuminous materials of the tissues. The fact that alcohol can be burned in the body in fairly large quantities, and that its combustion insures a corresponding amount of energy, renders plausible the view that alcohol can replace fat and carbohydrates as a source of energy; an idea which is reinforced by experimental evidence. Hence the view that alcohol must be ranked as food. Further, it is equally evident that, like carbohydrate, alcohol can protect tissue proteid and tissue fat, perhaps even to the extent of its isodynamic equivalent. On the question of saving proteid, however, we have to contend with another action of alcohol, viz., its well-recognized power

of stimulating proteid metabolism, under some conditions, apparently more marked in some individuals than in others. Still, in a general way, it is safe to say that alcohol does tend to protect the proteid of food or body tissue, acting in this respect much as carbohydrate foods do.

With these facts before us, and with a consequent recognition of the ability of the body to burn moderate amounts of alcohol with utilization of the resultant energy, thereby placing alcohol as a foodstuff on the same level as fat and carbohydrate, I wish to present certain reasons—purely physiological, why it is quite misleading to rate alcohol as a non-nitrogenous food, the equal of fat and carbohydrate; and here again let me say that all physiologists clearly recognize the possible pharmacological action of alcohol prior to its combustion, which action necessarily introduces many other factors to be considered in any estimate of the wisdom of utilizing alcohol as a foodstuff. It is not with these questions, however, that I wish to deal, but with certain facts regarding the action of alcohol on metabolism, which tend to differentiate alcohol as a foodstuff very sharply from both fat and carbohydrate.

Some eighteen years ago experiments were carried out in the writer's laboratory by Messrs. Charles Norris, Jr., and E. E. Smith on the influence of alcohol upon proteid metabolism.[1] These experiments were conducted upon dogs in nitrogenous equilibrium and led to the conclusion that alcohol, in such doses as we used, can serve as a non-nitrogenous foodstuff, protecting in a measure the proteids of the tissue much as carbohydrate foods do. At the same time, we observed a very striking change in the output of uric acid in these dogs under the influence of alcohol, *i.e.*, the excretion of uric acid was greatly increased, while the output of total nitrogen was diminished. In other words, alcohol, while it lowered the rate of proteid catabolism, exercised a special influence upon the rate of production or elimination of uric acid, increasing very notably the output of this substance through the urine. We immediately recognized the significance of these results and saw the necessity of a careful study of the question on man, but for a long time we were unable to arrange for an experimental study of the matter, under suitable conditions. Recently, however, Dr. S. P. Beebe, while in our laboratory, has carried out a most thorough series of experiments on man, and the results, published[2] a short time ago, afford a most interesting and important series of data bearing on this question.

The experiments were all conducted upon young men, five in number, of good health and regular habits, none of whom was accustomed to the use of alcoholic fluids. The results of the many experiments all lead to the conclusion that alcohol, even when taken in very moderate amounts, causes a noticeable increase in the amount of uric acid and of purin bases excreted in the urine. This increase in the amount of uric acid excreted is not connected in any way with the marked diuresis which the alcohol produces, *i.e.*, it is not due to a simple sweeping of urates, already formed and circulating in the blood, out of the system. Further, it was noted that alcohol does not cause this change in the output of uric acid when taken without food or with a purin-free diet. The increase of uric acid appearing in the urine, under the influence of alcohol, is not then of endogenous origin, but is unquestionably associated with some change in the rate of oxidation in the liver of uric acid of exogenous origin, or else there is a change in the rate of production of uric acid from the precursors of uric acid contained in the food.

In following out the rate of increase in the output of uric acid by hourly analyses of the urine, Dr. Beebe found that the maximum increase occurs at the same time after a meal as it does when purin food without alcohol is taken. The obvious conclusion from Dr. Beebe's experiments is that absorbed alcohol reaching the liver influences at once the metabolism of the proteid cleavage products, especially those which come from the breaking down of nuclein compounds. If we assume, as stated by Dr. Beebe, that the increased output of uric acid under the influence of alcohol, is due to an impairment of the oxidative powers of the liver, then we have to consider not only the influence of alcohol in diminishing the destruction of uric acid, but also the possibility of other oxidative processes in the liver being affected. It is to be remembered that the liver performs a large number of oxidations and syntheses, all tending toward the destruction of toxic substances which would otherwise be distributed through the system, hence it would seemingly follow that alcohol may not only cause an increased amount of uric acid and other purin compounds in the system, but it may also interfere with other processes normally occurring in the liver and thereby lead to the presence of other undesirable substances.

However this may be, it is, I think, quite plain that while alcohol in moderate amounts can be burned in the body, thus serving as food in the sense that it may be a source of energy, it is quite misleading to attempt a classification or even comparison of alcohol with carbohydrates and fats, since, unlike the latter, alcohol has a most disturbing effect upon the metabolism or oxidation of the purin compounds of our daily food. Alcohol, therefore, presents a dangerous side wholly wanting in carbohydrates and fats. The latter are simply burned up to carbonic acid and water, or are transformed into glycogen and fat, but alcohol, though more easily oxidizable, is at all times liable to obstruct, in some measure at least, the oxidative processes of the liver, and probably of other tissues also,

[1] Journal of Physiology. Vol. XII, p. 220.
[2] The Effect of Alcohol and Alcoholic Fluids upon the Excretion of Uric Acid in Man. American Journal of Physiology, Vol. XII, p. 13.

thereby throwing into the circulation bodies, such as uric acid, which are inimical to health; a fact which at once tends to draw a distinct line of demarcation between alcohol and the two non-nitrogenous foods, fat and carbohydrate.

Lastly, I am inclined to emphasize another observation made by Dr. Beebe, viz., that certain alcoholic drinks, such as port wine, for example, exert a much greater influence upon the excretion of uric acid, than a corresponding amount of alcohol, thus suggesting that even moderate drinking of alcoholic beverages may be attended with even greater disturbance of the metabolic phenomena of the body than prevalent ideas would lead us to believe. In this connection, however, as a matter of clinical significance, it is to be remembered that this deleterious influence of alcohol and alcoholic drinks is exerted noticeably only in connection with exogenous uric acid; hence, the use of alcoholic fluids, in many diseases where a light or non-purin diet is used, would not be followed by an increased output of urates. In other words, under these conditions the beneficial effects of alcohol might be looked for without the accompaniment of the disturbed purin metabolism. As an adjunct to the ordinary daily diet of the healthy man, however, alcohol cannot be considered as playing the part of a true non-nitrogenous food.

ALCOHOL IN DISEASE.*

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When your alluring president asked me to contribute a paper not to occupy longer than fifteen minutes in the reading, to the subject of the therapeutic uses of alcohol I was sufficiently audacious to tell him that the evening would be entirely filled without touching upon that branch of the subject. When the hour arrived for the preparation of the paper it seemed a little difficult to occupy so much of your time as the president graciously placed at my disposal; and then very soon the subject seemed to grow, as I progressed, so that to keep within the limits of the president's condition and of your patience, will be a little difficult.

Most of the recent work upon alcohol relates to its food-value and its toxicity, to alcoholism and the pathological conditions which it induces, and to the legislation bearing upon it: but very little work has been done and very few publications have appeared of late years upon its therapeutic uses.

A little that is new has been ascertained with regard to its *local* uses, both its interstitial injection into inoperable or recurrent uterine carcinomata[1] and angiomata[2] and also its power to permeate the epidermis and even the skin itself and to disinfect the skin and bring about local changes in the blood-supply and thus relieve certain symptoms, even in regions that cannot be considered to be entirely superficial.

Rieländer[3] made an experiment upon himself, which seems to explain this latter point, perhaps more heroically but not more satisfactorily than has been done by using guinea-pigs. He cleaned the skin of the extensor side of one forearm very carefully by diligent scrubbing with hot water and soap for five minutes. Then he rubbed it for five minutes with a 20 per cent. solution of copper nitrate in 96 per cent. alcohol and then subsequently bathed the part with a 10 per cent. solution of potassium ferro-cyanide for ten minutes. After this the skin was incised without anesthetic to the depth of the superficial fascia. The red coloring produced by the chemical reaction was found not only through the entire thickness of the epidermis but also in the connective tissue of the skin. It was very abundant in and about the hair-follicles; on the other hand, the sweat-glands and their neighborhood were usually free from it.

Other local uses of a surgical kind, as in disinfection of hands and treatment of hernia[4] deserve to be mentioned in passing. This power of alcohol to penetrate the epidermis and reach the skin even in its deeper layers is of very great practical use in conditions of superficial inflammation. The continued application to the abdomen of compresses soaked in alcohol and covered by gutta percha and cotton wool has given great relief in peritonitis,[5] and to one writer has seemed to cure[6] the disease where operation has been declined or is impossible.

Following out these ideas I have found it of great value in various painful conditions when applied in this way such as peripheral neuritis and phlebitis. In herpes zoster[7] there is probably no better application to relieve the pain, which effect may be confidently predicted.

Many kinds of local infection are amenable[8] to this local use of alcohol. If alcohol is carefully and persistently used suppuration can often be averted in inflammation of lymphatics as of buboes, for example, and in threatened abscess of breast, in carbuncle, furuncle, paronychia and other allied conditions, if only its application be made sufficiently early and with sufficient persistence.

One of the earliest local uses was in phlegmonous[9] inflammation involving the external ear and temporal and mastoid regions. Many of these cases are illustrations of its antiseptic power: its power to relieve pain when used in this local way is probably to be explained by its causing a dilatation of blood-vessels and thus diminishing congestion and consequent pressure.

The alcohol is to be applied on a compress consisting of six or eight thicknesses of cheese-cloth soaked with it and this covered with gutta-percha paper and cotton wool.

Alcohol is to be renewed several times a day, the frequency depending upon the location, and

* Read at a meeting of the New York State Medical Association, New York County, February 20, 1905.

the thoroughness with which it is covered by impervious dressings. The object is to keep the skin saturated with it.

It is well to remember that where the epidermis is thin this treatment, if employed at all, must be resorted to very cautiously. I should not apply it to regions like the scrotum or to very young children anywhere unless it is considerably diluted. I once knew a deep slough to follow its too energetic use over the coccyx in a case of coccydynia, by a surgeon noted for his thoroughness. The suggestion to use it in this case was made by me; and it is an interesting commentary on the relative standing of medicine and surgery before the community that he got the credit of curing the coccydynia and I of causing the slough!

Another modern use of alcohol is as an antidote to poisoning by carbolic acid.[10] The discovery of this relation was accidental. A woman swallowed an ounce of carbolic acid in whisky with suicidal intent. The doctor found her unconscious, her extremities convulsed, pupils tightly contracted, breath smelling of carbolic acid. He was astonished to find that in spite of the size and concentration of the dose her mouth, lips and tongue showed no evidence of burning by the acid. He washed out her stomach freely until the washings no longer smelt of carbolic acid. She became conscious and subsequently recovered completely.

This experience led the doctor to try alcohol locally in treating painful burns caused by the acid. The whitened areas on the skin ceased to burn and the pain entirely disappeared from them when they were covered with cotton soaked in alcohol Others soon confirmed this power of alcohol.[11] Since then whisky has been looked upon as an agent of great value in poisoning by carbolic acid.

In spite of these additions to its range of applicability the purely therapeutic uses of alcohol have been gradually reduced to very few; and it is gratifying to note that there has been, during recent years a distinct tendency to recede from the very liberal, almost reckless administration of it by the doctors of a former time. As a reaction against that time many modern medical writers are inclined to throw it away altogether as being either useless or toxic under all circumstances. Among these may be mentioned Kassowitz,[12] Bunge, Rosemann, C. Fränkel,[13] as perhaps the most conspicuous of its opponents.

That very large doses of it render animals less able to resist infections of various kinds has been shown by Fränkel[14] and his pupils as well as by others; but Meltzer[15] very properly criticizes all the experimental work which leads to this conclusion on account of the size of the doses employed. He says: "They do not throw any light upon the question whether conservative doses of alcohol properly given to a patient sick with an infectious disease, and under proper management and care, are harmful, indifferent or useful."

Meltzer, in the valuable paper just quoted, strongly favors the use of alcohol in diseases like typhoid fever and pneumonia and quotes an imposing array of modern clinicians of vast experience in favor of it. Among them are Curschmann, Pel, Juergensen von Jaksch and von Noorden.

Its use in disease is still strongly advocated by V. Leiden[16] who thinks that in acute febrile diseases it cannot be dispensed with and that in them it is capable of arousing the heart to a more energetic performance of its function. He regards the disposition to discard it as fanatical and wholly without justification.

Binz[17] also strongly urges its usefulness in disease, while admitting, as most thoughtful writers do, its uselessness in conditions of health and of normal nutrition. He still claims for it two attributes, namely its food-value and its value as a stimulant both of heart and of respiration and believes that its utility is not open to question in conditions of weakness and collapse.

His opinion as to food-value is based upon the conclusion so generally received as to its undergoing oxidation in conditions both of health and of disease, and thus saving waste of other tissues, both carbohydrate and nitrogenous.

George Bonne,[18] of Holstein, published a work in Tübingen, in 1899, in which he advocates total abstinence on the part of doctors, but very clearly sets forth the value of alcohol in certain pathological states which he restricts to a very small number.

Unbiased clinical experience seems to justify the belief that in alcohol we have still the best means of stimulating the heart and thus increasing a low blood-pressure in many pathological states.[19] Necessity for its use in this way may arise both in conditions of primary weakness or syncope, and in enfeeblement due to acute febrile disease.

It is not intended to deny that it is often prescribed carelessly, unjustifiably and inappropriately. I have seen patients, both adults and young children, that had been kept in a condition of semi-intoxication for days, whose head-symptoms promptly disappeared when this drug was inhibited. The very evident evils attending its misuse do not justify us, however, in going to the extreme of abolishing it from our list of therapeutic weapons.

Although many cases of pneumonia and the acute fevers never need alcohol in any form or at any time, nevertheless it must be admitted that many of these cases do need stimulation, and that for them there is no known substitute that will quite replace alcohol. Conditions of feeble circulation with all the alarming symptoms that indicate them, may sometimes be helped by digitalis, strophanthus, strychnine, adrenalin, caffeine and the rest, but there is no

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one of them upon which so much reliance can be placed as upon this one—indeed in many cases it is worth more than all of them put together.

I am quite willing to admit that all of the symptoms of intoxication, even the very earliest of them are to be ascribed to a paralytic effect exerted by it upon the cerebral cortex and are no part of its stimulating influence, and that there is no justification for the causation of them under any circumstances; but when all has been said against alcohol (and no hospital doctor of experience in any city in the world will minimize its power for evil) it still remains, in my opinion, unique in its general applicability to the accomplishment of the clinical ends to which I have referred.

As an antipyretic its powers are too feeble to make it of value: but it is of very great importance that the presence of fever does not interfere with its usefulness. Practically it often seems as if fever did decidedly interfere with the therapeutic activity of digitalis and others of its class.

To decide on the case that needs it and the dose that should be given is by no means always easy even for the experienced practitioner. A combination of high temperature, especially if persistent, with delirium and other signs of profound nervous prostration, together with a pulse which is rapid, easily compressible, possibly dicrotic, or of irregular force—this combination always calls for alcohol. But this special series of symptoms may not always be present when alcohol is needed. Thus the pneumonia and general bronchitis of old age may, without fever, loudly call for such stimulation.

If one were compelled to depend upon the indications supplied by a single organ, reliance should be placed upon the heart; and its investigation should include a careful study of the pulse and of the heart-sounds, especially the second aortic sound.

In these acute conditions, the aid of alcohol may often be reenforced by combining it with one or more of the others that have been mentioned, but there is not one among them that can be depended upon to replace it.

In the later stages of these diseases there may be no fever at all and yet the heart-symptoms may be urgent enough to demand alcohol. In all of these conditions in adults a half ounce of whisky every three, four, five or six hours is a good dose to begin with, and it may be increased or diminished according to its effects; and perhaps more important still is the fact that it should be a matter of conscience with the doctor to see that its administration is discontinued as soon as it is no longer needed.

There is little practical danger of engendering the alcohol habit by giving it to a fever patient; but it is well to bear in mind the fact that this danger increases progressively as the patient approaches a condition of health.

In general it is not unusual to see numerous obvious beneficial effects follow its judicious administration. The tongue becomes less dry, the pulse becomes slower and fuller, the skin more moist, the wakefulness and delirium less marked, the powers of digestion and assimilation improved.

Brunton has called attention to the fact that useful indication regarding the effects of alcohol and the regulation of its dosage may be obtained by the doctor if he will remain at the bedside occasionally for a quarter of an hour after the administration of a dose and watch the pulse, tongue, respiration, skin and general conditions. He will thus be able to see whether benefit is really resulting from it and to regulate the dose according to the needs of the individual case more intelligently then if he merely prescribes it in routine fashion and allows a day to elapse before he sees his patient again.

I am quite willing to subscribe to the closing statement of Meltzer's paper: "Alcohol in health is often a curse; alcohol in disease is mostly a blessing," or possibly, it might be safer to say that in disease it is a blessing when it is properly used.

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THE HEALTH OF THE NATION.[1]

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THE health of the nation seems rather a large topic, yet not too large for hopeful and practical consideration, nor yet so large as would be a kindred topic, the health of all nations, which is likewise one for serious and hopeful consideration. Indeed, these two subjects have a direct bearing one upon another, and one cannot be adequately considered without considering the other.

It is a somewhat trite idea, but one whose significance is of great present import, that the nations of the earth to-day are more nearly related than ever before in the world's history. "Not only has the 'narrow frith' been practically abolished," says a recent writer, "but the wide ocean is traversed by passenger ships in five days, and by thoughts put into words in a few seconds. All the world has become one neighborhood so far

1 Address before the New York State Medical Association, New York County, at the New York Academy of Medicine, January 16, 1905.

as relates to distances." In no manner has this been more strikingly shown than in the warfare against contagious disease. But a few years ago a violent epidemic of yellow fever in Cuba would excite no more than passing notice, while to-day the news of two cases in the far-off neighborhood of Santiago is immediately wired throughout the United States and foreign countries. A few cases of bubonic plague in the Orient, which a few years ago would receive no attention, are instantly reported and published throughout the United States, and one case of cholera on a ship in the Mediterranean is likewise immediately telegraphed to the principal cities of the world. International congresses, conferences, and conventions, are frequent, bringing the nations together as one family in the struggle against these foes of mankind. As in 1892 when a case of cholera appeared in Jersey City, the New York Board of Health took active interest therein, so is the United States Government interested when epidemic disease is reported in England, France, Germany, Turkey, Egypt, or any port in the Orient, for communication therewith is now swift and frequent. And so closely related are we in health matters to our neighbors of Mexico, Central and South America that periodical international sanitary conventions have been agreed upon by the several republics, and a permanent international sanitary bureau of American republics has been established and is maintained. I need further to refer only to the international congresses of medicine, of hygiene and demography, of tuberculosis, leprosy, and other allied subjects, to show how closely the nations are getting together in the effort to prevent and suppress disease.

We hear much at the present time of international peace conferences and arbitration treaties. Is it too much to expect, as a corollary or parallel movement, the cooperation of nations to prevent and suppress communicable disease? There is at present pending before the Senate of the United States a convention—practically a treaty—subscribing to the findings of the international conference of Paris, 1903, embodying the principles and practice necessary on the part of all nations for successful warfare against plague and cholera.

The International Sanitary Conventions of American Republics, previously mentioned, were instigated by the obvious advantage of an agreement for the sanitation of all yellow fever infected seaports. Seaports being the points of contact between nations, would properly be the first objective points in international sanitation, and their undoubted consequent prosperity would cause the sanitary movement to extend to other cities.

International sanitation might well be considered as adjunctive to the movement for universal peace. I believe it would be less difficult of achievement than absolute arbitration, or at any rate it could be made a powerful influence in establishing the latter. A former president of the French Republic, Monsieur Casimir Perier, at the opening of the Hygienic Conference in Paris, in 1894, said: "The international principles, which had their origin in the laboratory and are based on science, are the only ones which bind nations together with strong ties, and establish equitable and immutable laws."

This principle may well be considered by those who are seeking universal peace, and international responsibility with regard to disease is a subject worthy of the attention of all interested in the development of international law. So far as I know there is no mention in the treaties on international law of the responsibilities of governments to one another in matters of public health, but the time is ripe for adding such a chapter.

I quote from a recent writer: It seems "that nations are beginning to develop a conscience and a sense of justice for the rights of other nations. As a whole, the peace movement is another step toward the actual attainment of the ideal perfection of government." With this growing sentiment of harmony and fraternity among the nations there should be developed an international sentiment regarding sanitation and suppression of disease. If, as Tolstoi says, the only substitute for war is religion, international sanitation would be a powerful weapon in the hands of religion, if indeed it could not in itself be made a substitute for war. It surely would furnish a plain upon which nations might meet. It suggests a common enemy—disease—against which all might combine without fear of international complications, and would furnish a more worthy object than war for the expenditure of energy and money.

As to the health of this nation, the subject may be considered under two heads, the exclusion of disease and the extinction of disease. The former, which embraces the subject of quarantine, I will not discuss, as it may be considered by the distinguished gentleman who is to address you on the health of the port. As to the extinction of the ordinary communicable disease, is the idea one that is visionary or has it a good basis in scientific achievements and in practical results already attained?

It is not my purpose to burden you with statistics, but surely enough has been widely published to show a marked diminution as the direct result of special effort, and to encourage the belief that in the future most of these diseases may be as rare as they are now common. Their subsidence or disappearance will be due chiefly to good laws and effective administration. Good laws imply good organization, and it may be profitable to consider for a moment the health organization of the United States as it exists to-day.

In general, I believe, this organization is a proper one, but defective in many of its details. The United States Public Health and Marine-Hospital Service has, under various acts of Congress, certain maritime quarantine functions and interstate quarantine functions. It has also a hygienic laboratory "for the investigation of

contagious diseases and matters pertaining to the public health."

This last is generous and broad legislation, but is limited to laboratory investigations. Therefore, certain other investigations, which are desirable, cannot be made; for example, an investigation into the sanitary conditions at certain health resorts where tuberculosis patients are gathered in great numbers. I mention this simply as an illustration, but efforts will be made to meet this difficulty. The epidemic appropriation under which investigations other than laboratory can be made, is limited to certain specified diseases, namely, cholera, yellow fever, smallpox, typhus fever, and bubonic plague. The laboratory has an advisory board through which it is brought into relation with the medical departments of the army and navy, the Bureau of Animal Industry of the Agricultural Department, and through five distinguished scientists with the laboratories of leading institutions of learning. Thus the scientific pulse of the service is brought in contact with the profession.

In the practical administrative work of a sanitary character, the service is brought into relation with State boards of health and quarantine officers, through annual conferences required by law, and occasional conferences called either by the Surgeon-General or by the State health authorities.

Every State and Territory has a health department consisting either of a health commissioner, or of a State board of health, which has about the same relation to county and municipal boards of health as the national service has to the State organizations.

The chain of organization, therefore, seems theoretically a good one, and it would appear to be the part of wisdom to perfect and strengthen every link in the chain. The chain has not been forged all at once. Link after link has been added, and the several links strengthened as the occasion seemed to demand. In a growing country this seems to be the natural and proper method. The other method has been tried and failed.[1] So that our sanitary system must be one of gradual growth.

Thus far I have spoken only of the official health organizations, which are, of course, the most potent of all, based upon the statutes of the States and the nation, continuous in their operations and not dependent upon spasmodic effort or ephemeral enthusiasm. Yet it is impossible to ignore the valuable results of auxiliary organizations, voluntary in character, but inspired by noble and patriotic motives. They are too numerous to mention in detail, but I may refer to such organizations as the great American Medical Association, the American Public Health Association, State, county, and city medical societies, and the auxiliary sanitary associations that exist in so many of our States and cities. Through these public sentiment is developed which crystallizes into statutory laws and organizations.

One of the most common pleas of the sanitarian of to-day is for a wider diffusion of knowledge of hygienic and sanitary principles. It has been frequently said that sanitary science is far in advance of its practical application. The facts are known, but not to a sufficient number, and appeals are often heard for the introduction into schools and colleges of more instruction in these essential and easily comprehended subjects. The plea is justified by every consideration, but I should like to call attention to the necessity of the spread of sanitary information among intelligent adults, among the learned, and the wise; among the men who govern our cities and our States, and among our legislators. The knowledge I would seek to have impressed upon them is the value of sanitation in the advancement of the individual happiness and national, State, and municipal welfare. Too many regard sanitation as an ideal matter, efficacious theoretically. They should be impressed with the knowledge that improved conditions can and must be attained, and that bad sanitary conditions indicate sloth, a willingness to endure and ignore, characteristic of the least civilized and cultivated communities. The possibility of sanitation in the advancement of civilization should be impressed upon them, so that in addition to their high ideals of civil government they may also entertain ideals of sanitary advancement far beyond their present standards. Their influence and aid will then be more readily given when measures are brought before them for consideration or action.

There is one method of popular diffusion of knowledge which I have referred to on previous occasions, and which seems worthy of further consideration. It is the making of sanitation an issue in local politics. Issues might be made on efforts to suppress the ordinary diseases by municipal improvements, particularly in the worst portions of a city. I am aware that these improvements are liable to be unpopular among those whose excessive profits on investments would be unfavorably affected thereby, and even among those whose individual physical welfare is to be improved. But these difficulties can be overcome if the political movement is shrewdly and fairly managed; and these issues being the subject of popular discussion, hygienic and sanitary knowledge would be brought out and broadly diffused.

This idea has already been given expression by an association great in numbers and influence. At the recent annual meeting in San Francisco (last November) of the American Federation of Labor three hundred delegates were present, representing one hundred national and international labor unions, with a membership of about two million. In that convention was passed the following resolution, which seems to me significant of the earnest and laudable attitude of these unions toward the sanitary movement. The reso-

[1] A National Board of Health was established in 1879, but after four years its operations were discontinued and later the law creating it was repealed by Congress.

lution was referred to the committee on resolutions and adopted by the convention on the tenth day of its session. (Resolution No. 157.)

WHEREAS, In the proper embellishment of our towns and cities, by parks, monuments, ornamental buildings, boulevards, and driveways, there is too frequently an utter neglect in the removal of insanitary and unhealthful conditions in the less favored localities, and

Whereas, In our opinion one of the first duties of town and city governments is to make wholesome, by good drainage, paving, water supply, and correct tenement house construction, those portions of cities and towns that are now neglected in these respects, thus imperilling the health and happiness of the working people; therefore, be it

RESOLVED, In the interest of the poor and well-to-do also, town and municipal councils should give greater legislative attention with adequate appropriations to the removal of these evil conditions in the less favored localities, and be it further

Resolved, That the labor unions by supporting candidates pledged in advance to the support of necessary and wise ordinances, according with the foregoing principles, will advance the health conditions and material prosperity of the country; and the American Federation of Labor in this convention assembled recommends these principles to its affiliated national, State, district, and local bodies.

The foregoing resolutions seem to confirm the ideas I have endeavored to express as to injecting sanitation as a live issue in municipal politics, and you will recall that one effect of such injection would be a wider diffusion of sanitary knowledge among the working people, and a deeper impression of its importance among the more highly educated.

But there is more in these resolutions than the spread of sanitary knowledge. They express what seems to me to be a cardinal principle for guidance in practical measures to improve health conditions in the United States. They practically assert that the low, unsewered, unpaved, filthiest parts of our cities should receive the very first consideration in all plans for municipal improvements.

It should be the ambition of all those who take special interest in the health of the nation to bring about a slumless country. I have given expression to these views before, but they require repeated iteration. As stated in a former address, "there is no adequate reason why slums should exist anywhere, and by slums I mean places where through bad drainage, imperfect sewerage, inadequate air space, lack of pure water, and lack of sunlight, human beings are subject to disease and crime-inducing conditions."

Following this all sanitary administration would be much easier and more effective.

Now, in the elimination of slums, there are one or two principles involved, which should be carefully considered lest fatal mistakes be made. Such mistakes have been made, as may be seen in the reports of the commission on the housing problem in London. The right of the owner of the insanitary dwelling should be considered, and whether compensation should or should not be allowed him seems to be a matter dependent upon local considerations. But the rights of the tenants, however poor, must also be considered, and ordinarily it would seem wise to defer their ejectment until provision is made for their housing in quarters equal in size, no greater in rent, and as convenient in locality, as they have been occupying.

The bureau of which I have charge is now receiving, through the State Department, from the United States consuls abroad, and is collating the experiences and laws in foreign countries relating to these matters. The statement from one city contained a confession of mistake in that, while buildings are being put in sanitary condition respectable workmen are driven into localities foreign to their trades and among a foreign element, all of which is detrimental to their self-respect. This difficulty suggests the possibility of a coordination of effort between the municipalities and our wealthy philanthropists. The municipalities can well afford to pass ordinances for the destruction or reconstruction of insanitary dwellings, with a proviso for a possible delay of execution until proper quarters, as before indicated, are provided.

I would not undertake to say whether or not a plan of this character is applicable to a great city like New York, but with regard to other cities I believe it is. If municipal ownership of tenement houses is objectionable, then would be available the efforts of the milionaire philanthropist, who, not as a giver of charity, but as one willing to accept a very moderate return on his investment, would erect the necessary buildings.

I have said that the health of this nation might be considered under two heads, the exclusion of disease and the extinction of disease. There is another consideration worthy of attention, namely, the development of a healthy and robust individual organism. The elimination of the ordinary diseases and the development of a higher average of individual health and strength would practically mean life on a higher plane in all its features. It would mean a greater average of mental aptitude for work in the higher fields of human activity—in all the arts and sciences.

When thus we review the good results of sanitation, and survey the field and realize that improved conditions are within our reach, we certainly must feel a desire to hasten the day when they may be realized.

In dealing with my topic, The Health of the Nation, I have preferred to express these general ideas and principles, rather than to go into those details and statistics of disease and sanitary work which are narrated elsewhere in medical journals, reports of State and city boards of

health, and of the Public Health and Marine-Hospital Service.

Knowing that other speakers are to follow, whom we are all anxious to hear, I feel that I have fully occupied all the time due me, and, in closing, I wish to say that it is a rare pleasure and an opportunity greatly appreciated to meet and exchange ideas with the members of this society. I wish to thank your president for his kind invitation for this evening, and to thank you all heartily for your kind attention.

THE HEALTH OF THE PORT OF NEW YORK.[1]

BY ALVAH H. DOTY, M.D.,
OF NEW YORK;
HEALTH OFFICER OF THE PORT OF NEW YORK.

THE health of the port of New York, which has been assigned to me as the title of a paper to be presented at this meeting can best be considered in connection with a description of the diseases which are dealt with at the New York Quarantine Station, and the methods employed to prevent their entrance into this country.

Quarantine officers, while expecting to deal with almost any form of infection, usually regard some one disease as the most constant visitor which comes under their observation. The character of this depends upon the ports with which the various quarantine stations are in frequent and direct communication. For instance, yellow fever, which has been almost continuously present in South American and Cuban ports, is looked upon as a special menace to this country, particularly the southern portion of it, where ports of entry have made unusual and extensive preparation for the detection and care of this disease. Although New York and its vicinity have little or nothing to fear from yellow fever, it is necessary to bear in mind that a case in its early stage, or in a mild or ambulant form, if allowed to pass the New York Quarantine Station unrecognized, may reach a Southern town and possibly cause an outbreak of this disease. For this reason great care is taken at this port to detect the presence of yellow fever on incoming vessels. It may be truthfully said that in the past no disease which has visited the United States has caused such consternation and great loss of life or has been responsible for such stringent rules and regulations on the part of health authorities as yellow fever. Not only just but unjust means have been employed to prevent its extension. This has been carried to such an extent during the presence of epidemics in the South that the commerce of that section has been at times practically paralyzed. The enforcement of drastic measures was largely due to the belief that yellow fever was transmitted by personal contact with the patient, by discharges, the clothing and effects of the sick, cargoes of vessels, merchandise, etc.—even iron rails have been regarded as a medium of infection and have been subjected to disinfection. To-day we know that such regulations are unnecessary, as it has been conclusively proven by the most careful and thorough investigations that yellow fever is conveyed from one person to another by the mosquito. It is but proper to say that there are still some who believe that there may be other means of transmitting the disease. However, there is at present no reasonable proof of it, and for practical purposes it may be regarded as safe to assume that the mosquito is the only means by which the disease is conveyed. The importance of this knowledge cannot be overestimated, inasmuch as it places in our hands means by which formidable and dangerous epidemics of yellow fever can be prevented. The means to which I refer consist principally in confining the patient sick with yellow fever in an apartment completely protected by screens to prevent the entrance or exit of mosquitoes. This measure of protection is easily carried out, and in order to be eminently successful it is required that cases of yellow fever shall be very early detected. Aside from the use of agents such as sulphur dioxide in apartments to destroy the *Stegomyia fasciata*, the variety of mosquito which transmits yellow fever, disinfection is now regarded as unnecessary. Exhaustive experiments which were made at the New York Quarantine Station conclusively proved that the mosquito will not live in closed trunks, bags and other receptacles more than twenty-four or thirty hours; therefore the disinfection of baggage which has been in transit more than two days would seem to be uncalled for. This not only simplifies the methods employed in the treatment of outbreaks of yellow fever, but relieves commerce of the long delays and great expense which general disinfection has heretofore involved. No one welcomes this change so earnestly as the quarantine officer, inasmuch as the problem of securing a thorough and safe disinfection without unnecessary delay to vessels and their passengers is now practically eliminated.

Another factor which has recently made considerable change in quarantine methods, particularly at the Port of New York, are the means employed to prevent the entrance of bubonic plague into this country. The appearance of this disease in European and South American ports during the past five or six years has caused considerable apprehension, as it was believed that these outbreaks would be followed by results similar to those reported from India, where the mortality from this disease is very great. This anxiety was largely due to the meager knowledge heretofore possessed of the character and habits of this disease. Furthermore modern methods of sanitation are not in force in India, and the sanitary authorities not only do not receive the support of the people in efforts to enforce proper regulations, but have their opposition instead. The people there are extremely poor and ignorant, and are herded together in great numbers, thus

[1] Read before the New York County Medical Association, at the New York Academy of Medicine, New York, February 16, 1905.

giving any infectious disease every opportunity to extend. In Santos and Rio Janeiro, where outbreaks of plague assumed an epidemic form, and where sanitary regulations, although fairly good, are far inferior to our own, the disease was soon brought under control. In efforts to detect the presence of this disease, it is necessary to bear in mind that it may appear either as the "bubonic" form, which is associated with enlargement of the superficial glands, particularly the inguinal and auxiliary ones, or the "pulmonary" form, in which the symptoms are principally referable to the lungs. Aside from the transmission of the disease by personal contagion, it is necessary that proper consideration be given to the rat, which has been regarded as a common means of conveying the disease from one person to another. Although there is no doubt as to the truth of this, there is also no doubt that the importance of the rat in the transmission of the bubonic plague is overestimated. In addition to vermin we have yet to consider the probability of the disease being conveyed by insects. During the past four or five years a number of cases of bubonic plague have been removed at the New York Quarantine from vessels arriving from South American and Indian ports. In no instance did secondary cases occur among those who were in contact with the patient, either on shipboard or on Swinburne Island. This tends to show that bubonic plague, when modern sanitary regulations are in force, is not easily transmitted. The pulmonary form, which is very fatal, is not usually seen away from India.

In vessels arriving from cholera ports great care is taken to detect the disease in its various manifestations. The ship's log is carefully examined, and all cases recorded as heart disease, diarrhea, dysentery, etc., which may either have died or recovered in transit to this country, are regarded as suspicious, and as a rule justify the detention of the crew, besides a thorough disinfection of the vessel. Fortunately, vessels coming from cholera and plague infected ports do not as a rule carry passengers.

Typhus fever and smallpox, which complete the list of five diseases that are specially subject to quarantine regulation, are also carefully watched for, particularly if there is any reason to believe that these diseases exist at the ports of departure.

In order to insure the detention of infectious diseases in the stage of invasion all persons arriving at this port on foreign vessels having fever as indicated by the thermometer, and which cannot be satisfactorily accounted for, are subject to removal to Swinburne Island for observation. In this manner many cases of infectious disease have been prevented from reaching the city.

Success on the part of quarantine officials in the detection of infectious disease and the treatment of passengers, crews and vessels depends upon the character of inspection performed, and an intimate knowledge of the principles which govern modern and practical sanitation, which it can be said is now placed on a scientific basis. We are therefore dealing mainly with facts and not theories. Many of the latter which have long held sway have been repudiated by practical sanitarians.

I am confident that the clothing worn by well persons, textile fabrics, other than those used about the sick, merchandise, cargoes of vessels, etc., rarely act as a medium of infection. I am convinced of this as a result of careful investigation and practical experience. The theory that this material transmits disease undoubtedly receives its chief support from the fact that it is the only plausible explanation of the presence in a community of a case of infectious disease, the origin of which cannot be satisfactorily accounted for. While this theory is apparently reasonable and easily accepted, it is associated with great danger to the public, inasmuch as it discourages a careful and thorough inspection to ascertain the real origin of the outbreak, which I believe is frequently due to the presence of mild, ambulant or unrecognized cases. This statement I am quite sure will be indorsed by many who have had long practical experience with infectious disease. In support of the statement which I have just made, I will cite the following instances from my own experience: During the prevalence of typhus fever in New York City in 1893, a thorough investigation was made as to the origin of each case brought to the notice of the Health Department. The investigation frequently covered over a period of a week or more, and in the great majority of cases the most satisfactory and conclusive proof was obtained that the disease was contracted by personal contagion and not through the medium of clothing, etc. Typhus fever also existed in New York during the previous year, 1892. During the period referred to (1892-1893) there were 714 cases of typhus fever, and 814 cases of smallpox under the observation of the Health Department. The Bureau of infectious diseases at the time referred to consisted of from sixty to seventy-five officers and employees, including diagnosticians, vaccinators, ambulance drivers, etc., all of whom were more or less constantly in direct contact with the above cases and their apartments. It was frequently necessary for the diagnosticians to undress the patient in order to make a thorough examination. Ambulance drivers and other attendants carried the patients from their apartments to the ambulance, and afterward from it to the hospital wards. Gowns were not used, and the officers and employees referred to went freely to and from their homes to the seat of infection; yet in no instance during this entire period of almost two years was either typhus fever or smallpox transmitted to the families of these men, or to the other occupants of houses in which they lived. Fourteen of the employees contracted typhus fever, and seven died. The fact that the fourteen men referred to

were promptly removed to the hospital on the appearance of the first symptoms of the disease will, I believe, explain why members of their families and others were not infected, inasmuch as there is good reason to believe that typhus fever does not usually transmit infection during its very early stage. If infection were commonly communicated by the clothing worn by well persons, it seems reasonable to infer that it would have been demonstrated in the instance just referred to.

During the past six or seven years a number of cases of bubonic plague have been brought to this station by vessels coming from South American and Indian ports. In all but one instance the disease was in a mild or ambulant form, which under the ordinary inspection of passengers would have passed unrecognized. The persons affected were able to stand erect on the deck of the vessel, answer all questions, and presented no evidence of the disease. However, when their clothing was removed and a glandular inspection made, the disease was recognized and the diagnosis confirmed by bacteriological examination; moreover, at no time during their detention at Swinburne Island did their general condition or appearance indicate that they were affected with the plague. The presence of a case of this kind in a crowded sailor's boarding house in a large city would be likely to transmit the disease, and inasmuch as no record of a previous case was forthcoming, the infection would probably be attributed to clothing or cargo. Cases of the mild or ambulant form of yellow fever, or in the early stage of this disease, have been detected at this station by the use of the clinical thermometer, when the ordinary methods of examination would probably have allowed them to pass unrecognized.

The opening of the school season largely increases the number of cases of diphtheria, scarlatina and measles, and it is the belief of many that they are transmitted by the clothing of well children who are members of families where infectious diseases exist. That this belief has not been well founded has been clearly demonstrated by the Health Department of New York and other cities. Inspectors connected with the school corps are constantly finding in the schools mild and ambulant cases of the above diseases, which have not been recognized and which are unquestionably principally responsible for the increased number of cases of infectious diseases which follow the opening of schools.

What I have said regarding the necessity of a careful inspection in outbreaks of infectious diseases applies in the most forcible way to quarantine inspection, inasmuch as after the release of a ship no further opportunity for examination is, as a rule, afforded.

In referring particularly to this part of the subject, it is not my intention to discourage the use of every reasonable and sensible measure necessary to prevent the extension of infectious disease, but rather to indicate in what direction our energies should be directed for this important purpose. I am certain that the full acceptance of the theory that the clothing worn by well persons, merchandise, cargoes, vessels, etc., commonly transmit infectious disease militates against the careful inspection, which I believe is imperative in order to discover the true origin of outbreaks of infectious disease and to control them promptly and successfully.

The inspection of passengers and crews at the New York Quarantine Station is of the most rigid character. Neither the bill of health, the statement of the ship's captain, or surgeon, or of any one else is taken in lieu of a careful personal examination when called for by the regulations of the department. The use of carefully registered thermometers constitutes a part of the inspection of passengers and crews coming from infected districts. If plague is suspected all on board are subjected to a glandular examination, and special attention is given to the presence of any pulmonary affection. The use of the thermometer is also included in the inspection of plague suspects. A passenger or member of the crew having an elevation of temperature, which cannot be satisfactorily accounted for, is subject to removal to Swinburne Island for observation. Those who have been in contact with infectious disease on shipboard are also held for observation. So-called cases of malarial fever, particularly from Southern ports, are detained until an examination of the blood shows the presence of the malarial plasmodium, or until the disease has been shown not to be yellow fever. The clothing of the crew and passengers, bedding and forecastle, etc., of vessels coming from plague of cholera ports, which have been long in transit, are on their arrival here thoroughly disinfected; not on the assumption that this material may have conveyed infection from the ports of departure, but on the ground that in the long voyage there may have been cases of infectious disease which have recovered and are not properly reported.

When disinfection is necessary steam at a temperature of 230° F. with an exposure of fifteen minutes is used for the treatment of clothing, bedding, and other textile fabrics, inasmuch as it is the only agent which can be depended upon to thoroughly penetrate the material referred to. When furs, silks, satins, and other delicate fabrics, and also leather goods, etc., which are destroyed or injured by steam are to be disinfected, formaldehyde gas is employed. In these instances, however, every article is carefully hung up and spread out in order that all surfaces shall be exposed to the gas. Formaldehyde is also used in the disnfection of saloon apartments, which contain fine fabrics, gilding, etc. Hot water and soap, sulphur dioxide, bichloride of mercury and carbolic acid are variously used in the cleansing and disinfecting of the ship's forecastle and other apartments after the removal of all textile fabrics, merchandise, etc.

However, the thorough use of soap and water by scrubbing, followed by the generation of sul-

phur dioxide, or formaldehyde gas in the closed apartment, is as a rule all that is required to insure safety against infection. I am sure that the value of soap and water in the treatment of filthy and greasy woodwork, which is almost always found in the ship's forecastle, and commonly in schoolrooms, etc., is not properly appreciated. Under these conditions, the use of a solution of bichloride of mercury or carbolic acid certainly does not cleanse the woodwork nor can it be depended upon to insure disinfection.

The disinfecting steamer, James W. Wadsworth, which is always under steam at the New York Quarantine Station, contains all the apparatus which is used in modern disinfection. In this way the treatment of vessels is properly carried out with very little detention. After the removal of a case of infectious disease, and also those that have been exposed to it, as in smallpox, or where all passengers and crews are subject to removal, as in the presence of plague, cholera or typhus fever, thorough disinfection of the vessel is performed, and the latter promptly released. The further detention of a vessel is not only unnecessary, but it entails a serious expense to the owners. The detention of a case of infectious disease on shipboard is in violation of one of the cardinal principles of marine sanitation, inasmuch as proper segregation and quarantine cannot be properly carried out, and the infection is apt to be further extended. Besides, under these circumstances, the time for the release of the vessel cannot be determined.

In transatlantic mail steamships, the deposition of the captain and surgeon that the saloon passengers and crew of the vessel are well is under ordinary conditions and where no epidemic or infectious disease is prevalent at the port of departure, accepted in lieu of an examination. However, under no conditions are steerage passengers exempt from examination. Experience has shown that this procedure is safe. Furthermore, the examination of two or three hundred saloon passengers and two to six hundred members of a crew, who are constantly needed in the movement of the vessel, would involve a detention, which is not under ordinary circumstances justified.

If success has attended the efforts of the Health Officers' Department of the State of New York, to prevent the entrance of infectious disease into the United States, it has been due to a strict observance of the principles which govern modern sanitation.

Identification of the Body of Paul Jones.—According to the newspaper reports the identification of the body of Paul Jones, recently exhumed in Paris, is complete in every particular. Found where it was expected, the body, remarkably well preserved, shows marked resemblance to the extant portraits and busts of the Admiral, and corresponds to the recorded measurements. As a finishing touch to clinch the identification, an autopsy "showed distinct proofs of the disease from which the Admiral is known to have died."

WHAT THE STATE OF NEW YORK IS DOING FOR THE INSANE.[1]

BY FREDERICK PETERSON, M.D.,
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On the invitation of your President I have the honor to address you upon the subject of "What the State of New York is Doing for the Insane and for the Advancement of the Science of Medicine."

Having left the busy ranks of the medical profession for a few years, to be one of the Commissioners in Lunacy of the State, I feel that I have returned to my work with some news to tell of a medical domain outside of our common experiences. The isolated position of many State hospitals as well as private retreats, and the fact that the State in taking charge of the vast body of the insane, supplies its own physicians and that these physicians, by reason of their isolation and preoccupation with institutional duties, have not come into such active relations with their profession as their more fortunate brothers in general practice,—all of these features have made the asylum system rather foreign country to the medical profession. I feel that I have been abroad and should tell you some of the matters observed in my travels.

In the first place, there are between 26,000 and 27,000 insane in the State's public and private asylums. These institutions now number 39. The annual increase in the number of the insane under State care is between 700 and 900, almost enough to suggest the construction of a new hospital each year. Every asylum is greatly overcrowded. The movement of population is rather rapid, about 6,000, in rough figures, being admitted to the hospitals yearly, and 5,000 discharged. The Lunacy Commission, consisting of one medical man, one lawyer and one layman, have the entire supervision of all of these institutions, as well as the direction of the expenditure of some $5,000,000 yearly. I would say here—to forestall commentaries—that no member of the Lunacy Commission ever saw this money or handled it. It remains in the State Treasury until disbursed by the Comptroller, upon estimates made by the various hospitals subject to the approval of the Lunacy Commission.

The chief duties of the Lunacy Commission are to visit all of the 39 public and private hospitals twice yearly, or oftener if necessary, to examine into their needs in the way of improvements, repairs, etc., to look over and revise the thousands of items of proposed expenditures in the estimates, to prepare plans for new construction, and to look to the welfare of the patients. In addition to this, the medical commissioner must see and examine all of the new patients admitted each year. With such large administrative duties, you may be sure that in the work of the Commission medical questions, as a rule, receive

1 Read before the Medical Association of Greater New York, January, 1905.

but small attention, and then only when forced upon the Commission by the one medical member. The innumerable hours of joint deliberation by the Lunacy Commission are devoted almost wholly to matters economic, mercantile and administrative.

"The time has come," the walrus said,
"To talk of many things:
Of shoes—and ships—and sealing wax—
Of cabbages—and Kings—
And why the sea is boiling hot—
And whether pigs have wings."

Having accomplished what I could in a medical way in the service, I was very glad to give up these arduous duties three years before the expiration of my term of office, in order to devote myself to more congenial, as well as more lucrative work. But my experience as a commissioner made me familiar with the nature of the work required of a superintendent of a hospital, which was exactly paralleled by mine. It is not the fault of a medical man who becomes a hospital superintendent that his labors should tend to become more and more administrative, and less and less professional. It is the fault of the system, and the physician who undertakes this work simply falls a victim to the institutional Juggernaut. The asylums are large aggregations of people, sometimes 3,000 or 4,000, and each aggregation presents the multiplicity of detail that may be observed in any village of like size. The medical superintendent is the Mayor of the town and has to do with its commerce, its agriculture, its bookkeeping, its sanitation, its water-supply, lighting, heating, road-making, street-cleaning, laundry-work, as well as the feeding, clothing and care of all the citizens. He has under him efficient aids in the persons of steward, farmer, a corps of physicians, and a great staff of other employees. The assisting physicians take the superintendent as their model, and while they are brought more closely into contact with the patients and the medical work, the system is prone to make them also more and more administrative officers, and less and less medical in their tendencies. Having once been an assistant physician for some years in a large asylum I have a fellow-feeling for these young men, who are often isolated from professional life by the distance of the hospitals from medical centers. They find themselves confronted with innumerable duties of a non-medical character. They have placed before them an enormous mass of medical material, but they find the problems of psychiatry most abstruse and difficult. They fall into a dull and dispiriting routine, which is only enlivened by the certainty of the quarterly salary. Many an eager medical mind, many an ambitious spirit, has been crushed by these conditions.

These facts are true of a hundred asylums in this country, and of a hundred or more in Great Britain. Only the other day a *Lancet* leader dealt earnestly with this subject in connection with the London County asylums.

But I want to say on behalf of New York, that her efforts to change this state of affairs have placed her in the lead of all the American and British communities. There are no better public hospitals for the insane than ours, and there are no others where at the present time more purely scientific and medical work is being done.

To Dr. Carlos F. Macdonald, one of my predecessors in the office of Lunacy Commissioner, the credit is due of having established the first central laboratory in this country for the study of psychiatric problems. While there have been changes in the personnel of this laboratory, excellent work has been done in it since its first inception. During the past three years, under the direction of Dr. Adolf Meyer, a great deal of attention has been paid to the very matter just referred to, of stimulating new medical interest among the one hundred and thirty physicians constituting the staffs of the fourteen State hospitals. This central Pathological Institute occupies a building on Ward's Island adjacent to one of the largest of the hospitals there. There are some 4,000 patients on the Island. In addition to the Director, there is a staff of workers in pathology, chemistry, psychology, clinical psychiatry and the like. While research work is an important function of the Institute, the instruction of the physicians in the State hospitals was felt to be of almost equal consequence. During the first year of Dr. Meyer's incumbency all of the superintendents of the fourteen State hospitals gathered at Ward's Island for a brief course of lectures and demonstrations which should serve as an index of the character of the medical and scientific work to be carried out in each hospital. During the same year, 65 of the assistant physicians, from all parts of the State, were sent to the Institute for a longer course of instruction in clinical methods, and in neuropathology. Subsequently 16 physicians from various hospitals took three-months' courses at the Institute, while 25 others took shorter courses. In addition to this, Dr. Meyer and his assistants have spent some time at each asylum, working over clinical and pathological material with the staff. Particular stress has been laid upon the most careful study of the clinical side of all cases admitted. In my time of asylum service, histories appeared to be kept chiefly as evidence of insanity, to be used in case of habeas corpus proceedings. The elaborate histories now taken not only present a clear picture of the mental condition of the patients, but record so completely every physical abnormality that they have already become a treasure-house of important data for reference. It is safe to say that there are over 10,000 histories of patients in the books better recorded than any ever before put down in asylum annals. The accumulation of such material must become of incalculable value to investigators in psychiatry; but quite as important is the fact that the very work of their preparation is an education to the young men performing the

services, stimulating their understanding, improving their powers of observation, and sharpening their scientific judgment. It makes them better physicians, and in so doing directly profits the patients under their care, who must inevitably reap the benefits of better diagnosis and more expert treatment.

The practice of having staff meetings once or twice weekly, for the discussion of conditions of patients and for the presentation of new and interesting data in the domain of medicine, has become general. Each hospital has in effect its own medical society. The State has been liberal in allowance for medical books and scientific periodicals in all languages, so that a well-equipped working medical library exists in each institution. Every hospital desiring it, has been thoroughly fitted out with its own clinicopathological laboratory and accessories with all sorts of instruments of precision, with fine operating-rooms, X-ray apparatus, electric machines, hydrotherapeutic apartments, and the like. Nothing has been spared to make each institution equal in facilities and appliances to any general hospital. Where asylums are located sufficiently near to large towns or cities, consulting boards of medical men, active in various specialties, have been secured in order to bring the members of the staffs into relation with all lines of medical progress. These boards of consultants have not been merely honorary associates in the work, but have proved singularly interested and efficient and often enthusiastic. The hospitals have been thrown open to recent graduates, who should take positions therein similar to those of internes in general hospitals. With their large population and laboratory facilities, these institutions offer great opportunities to ambitious young men unable to secure the more coveted positions in general hospitals. The result of all this has been to make each asylum a nucleus for a large amount of genuine clinicopathological work, despite the difficulties that formerly beset the scientific path of the assistant physician, and in time the effects will become more and more apparent. I firmly believe that as time goes on, the superintendent of a large asylum in this State will be first of all a medical and scientific man, and only secondarily an administrative officer. He will find means to supervise the machinery of his hospital through efficient heads in the various departments under his control, without sacrificing his professional ideals to matters wholly subsidiary.

The asylums of New York were among the first institutions for the insane in this country to establish training schools for nurses. This was begun twenty years ago at Buffalo, and since then every hospital has had its training school in which instruction in all departments of nursing is given as in general hospitals. Many of their graduates are now doing general nursing in all parts of the State, though, of course, the majority remain in the hospitals. Considerably over a thousand nurses have been graduated.

There is a woman physician upon the staff of each of the State hospitals, as well as a salaried dentist and ophthalmologist.

Patients are always sent for by the State hospitals when the request is made, nurses of the proper sex, and often a doctor too being delegated for this purpose. There is an ambulance service at the foot of East One Hundred and Sixteenth Street, which might be more used if the physicians of New York were more familiar with its existence. We have the habit of sending patients to Bellevue for examination, whence they are transferred to various asylums and retreats. But this is not necessary. The commitment papers may be made out by any two examiners in lunacy in the city, and the Ward's Island hospitals notified. Then the ambulance and nurses would be despatched for the patient.

In something like seven years the law requires the State to give up Ward's Island to the city, and inside of that time all the insane will need to be removed to new country asylums, whose sites ought to be selected and purchased at once. There is no doubt that New York City will refuse to extend the lease of the Island, for she needs it for her own purposes.

Having this fact before us, that New York City would before long have no nearby hospital for her insane, and believing in the policy of speedy access to hospital facilities, we had a bill passed last year appropriating $300,000 for the construction of a reception hospital for the insane on Manhattan Island in the center of population. The State will build and permanently maintain this psychopathic hospital, provided the city will furnish the plot of ground required. The only existing reception hospitals of this kind in the United States are at Albany, N. Y., and Ann Arbor, Mich. But Boston is just about to construct a psychopathic hospital in the heart of the city. The plan of the State of New York is to have such a hospital on Manhattan Island, another in the Borough of Brooklyn, and one in connection with each of the State hospitals in or near large towns throughout the State. By means of these adjuncts to the existing system, speedy access to hospitals, and more effective methods of treatment of the acute and curable cases will be secured.

In this connection, I would also call attention to the new law recently enacted, relating to emergency commitments (Chapter 146, Laws, 1903). Any State hospital is authorized, upon the certification of two medical examiners in lunacy and of the petitioner, to receive immediately any emergency case of insanity, and the judge's approval need not be obtained for five days.

There are a number of other evidences of progress in the care of the insane in the State, which have contributed to place our institutions among the best in the land. The following are a few of the improvements that have taken place in the last fifteen years:

Restraint by means of straps, straight-jackets, cribs, etc., has been almost wholly abandoned, and where used at all is employed only as a last resort, and its use is safe-guarded by signed medical orders kept on file, copies of which are sent to the Lunacy Commission. The same is true of solitary confinement of the disturbed classes.

Women nurses are employed in many male wards. Some wards in each institution have unbarred windows and unlocked doors (the open-door system).

Occupations for the patients have been multiplied and the labor of the able-bodied in the buildings and in the shops, fields, gardens and barns, has come to have a great monetary value.

The wards and rooms have been made more and more attractive by furnishings, pictures, birds, plants, libraries, games and musical instruments. In fact the criticism has been made at times that the hospitals too closely resemble luxurious hotels. But as all this has been done at a cost of forty-seven cents per day per patient, even in the most expensive year (that of the coal strike), such criticism is on the whole rather complimentary.

Religious services are held regularly by salaried chaplains, and there are all sorts of indoor and outdoor sports, entertainments and recreations.

The segregation of tuberculous patients has been carried on for some years in tents, a system first begun by Dr. A. E. Macdonald, late superintendent of one of the Ward's Island hospitals and quite recently several special tuberculosis hospitals have been constructed, the plans of which are fully described and illustrated in the last Annual Report of the Lunacy Commission.

I should not close these remarks without stating that almost the whole of the progress made in the means and methods of caring for the insane, has been due to the initiative of the superintendents themselves, and that suggestions of improvements from other sources have always been favorably received and zealously abetted. The reforms have mostly come from within, and in so far as they have been successfully carried out, are an index of the triumph of their spirit over the deadening effects of institutionalism.

ABDOMINAL NEPHRECTOMY, WITH ILLUSTRATIVE CASES.[1]

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I DESIRE to call your attention to the surgical conditions which not only demand the removal of the kidney but in which existing manifestations indicate that the preferable route for its removal is through the abdomen. It is to be understood at the outset that the operation of nephrectomy is to be the last resort in the treatment of the surgical affections of the kidney.

[1] Read at the Semi-Annual Meeting of the Onondaga County Medical Society, December, 1904.

In none of the cases, to be presented, was the kidney the site of a neoplasm. No one would for a moment question the necessity of nephrectomy where the kidney is affected with sarcoma or carcinoma.

In all of the patients, whose histories I will narrate, there were present, however, pathological conditions quite as incurable. The kidney had, in each instance, ceased to functionate as an excretory organ, and was in a state of advanced destruction.

There is a great divergence of opinion in the surgical world as to the dangers attending abdominal nephrectomy. In the lumbar operation the peritoneal cavity is, as a rule, not entered. While I am ready to admit that where one can avoid opening the abdomen this should be done, I wish likewise to insist that with proper precaution there is no particular danger involved by this step. The peritoneal cavity can be easily safeguarded and I feel that when this is protected there is very little danger of provoking peritoneal infection.

Two conditions are encountered which can be more easily and I believe more safely met by the abdominal operation. The first depends upon the size of the mass. This may be so great that the limited space between the ribs and the ilium, makes it a matter of great difficulty to remove even large cystic tumors through the loin, not to mention the solid tumors of great size. But to me the second consideration is of greater significance, namely the presence of extensive adhesions. It is impossible to free these satisfactorily through the lumbar incision. One is obliged to do so much of the work in the dark. Therein lies the great advantage of the abdominal route. In several of the cases, which I will report, you will note the extensive adhesions to the intestines and also to large vessels. Under the most favorable conditions with everything in plain view, laceration of large vascular channels and of intestines may not always be avoided; but when such mischief is done there is furthermore the great advantage of being able to promptly control the bleeding and to repair the damage to the viscera. If the surgeon is able to see what he is doing, his work is greatly simplified and done with greater safety and dispatch.

Moreover, while there are other ways of determining the presence of both kidneys, one can always demonstrate their existence through the open abdomen. Catheterization of the ureters is a procedure which few men, comparatively speaking, are able satisfactorily to perform. The segregation of the urine by means of the Harris instrument is easily done, but there is a question as to whether it is absolutely reliable. One does not feel that a second incision through the back over the supposed site of the opposite kidney is always quite justifiable, merely to determine its presence. Through the abdominal wound one is able to settle this question. I have never felt that there is as much shock attending opera-

tions in the upper part of the abdomen as in the lower. The establishment of drainage through the loin I look upon as an essential feature of abdominal nephrectomy. Permit me without further preamble to relate the histories of the cases to be presented for your consideration:

Case I. Hydronephrosis, due to Abnormal Origin of Ureter; Nephrolithiasis; Nephrectomy; Recovery.—Miss G., aged twenty-eight years; unmarried; seen in consultation with Dr. Hawley May 2, 1902. Her mother is insane. There is a negative family history otherwise. Four years prior to my seeing her, patient had had an attack of pain on the right side of the abdomen in the region of the liver which was attended with jaundice. Dr. Hawley attended her at this time. For fully three if not four years, prior to my examination, she had been aware of the presence of swelling on the left side of her abdomen. She stated that at times it was much larger than at others. In April, 1901, while she was a kindergarten teacher, she strained herself in lifting and for three days passed bloody urine. On the first day the urine was very dark but during the succeeding days it grew lighter until its color became normal. She had no further attack of hematuria. About once a week for a long time she had had attacks of severe pain on the left side which would last, perhaps, two hours. On the day preceding our examination it was more severe than usual, compelling her to empty her bladder every two hours during the day and two or three times during the night. This was never associated with any pain. Her weight, which had never been great, was 98 pounds. Her general health, however, was good. She stated that when first she noticed the growth it was located in the left iliac fossa. At the time of our examination the left half of the abdomen was entirely occupied by a tumor which reached upward to the ribs and downward into the pelvis. It extended three inches to the right of the umbilicus, was tense, elastic and apparently fluctuated. It was not possible to make a vaginal examination, and per rectum the digital examination was unsatisfactory. The mass could be moved laterally but it was too large to move far upward. The urine was found to be yellow, slightly turbid; alkaline; sp. gr. 1.014; containing neither albumin nor sugar; earthy phosphates slightly increased, total 8 per cent.; microscopically a large number of triple phosphates, some red blood cells, pus cells and both renal and bladder epithelium.

On May 29, 1902, after making the necessary preparations, Dr. Hawley and myself operated upon her at St. Joseph's Hospital. Under the anesthetic the mass was more mobile but was much too large to carry up out of the abdomen. There was no doubt as to the tumor being a kidney, but because of its size and location it was decided to do a transperitoneal operation.

As soon as the abdomen was opened I carried my hand to the opposite side of the abdomen and determined the presence of the other kidney. This was of normal size and shape. After cutting through the peritoneum the enlarged kidney was easily brought out. It was 10 inches long and 6 inches in its transverse diameter. The ureter and renal vessels were clamped and the kidney was cut away. The stump of the ureter was treated with carbolic acid, inverted and sutured. The vessels were ligated. A small incision was made in the loin for drainage. The peritoneum was replaced, secured by three or four retention sutures; the abdominal wound closed without drainage. Six hours after operation patient had a pulse of 90 and temperature of 99° F. There were no disturbing manifestations in the subsequent course of the case. She has continued to enjoy perfect health.

You will note, on examining the specimen, the enormous dilatation of the pelvis of the kidney, as well as of the organ itself which presents a thin shell with but little of the normal substance remaining. The ureter was not obstructed, but was inserted into one end of the pelvis and lying close to it. The lining of the cavity of the kidney presented several hundred very small, pale-brown, smooth faceted calculi. Dr. Steensland, who carefully examined the specimen, makes the following diagnosis: Chronic hydronephrosis resulting from the fact that the ureter arises from the pelvis of the kidney at an acute angle; nephrolithiasis.

Case II. Hydropyonephrosis, due to Calculous Obstruction and Subsequent Traumatism; Nephrectomy; Recovery.—Mr. B. was brought to my office July 2, 1901, by Dr. Cook. He was thirty-eight years of age; married; was a constable in the municipal court. He had always enjoyed good health. On June 5, 1901, he was riding in a trolley car which was overturned. He was thrown under a seat and a heavy man fell upon him. After the man was lifted off, the patient found himself able to get up. He walked out of the car and even assisted others who were injured. He was driven home. There were some abrasions upon the body. He complained soon after of pain in the right side of his back, which extended down the abdomen and into the right thigh. On urinating he suffered pain over the anterior part of the abdomen on the right side. Blood was found in the urine voided in the evening some six hours after the receipt of the injury. The man was confined to his home upward of three weeks and on getting around felt as if there was a contricting band about his abdomen. At the time of my examination he said he felt as if there was a weight pressing on his left side. He complained rather more of left- than right-sided pain. At this examination, about four weeks after the receipt of the injury, the urine voided at my office was turbid, neutral, contained a large amount of albumin, even in the filtered specimen, and, microscopically, numerous blood corpuscles, some bladder epithelia and an occasional oxalate of lime crystal.

I did not see the patient again until April 23, 1904. At that time he stated that he had had persistent urinary disturbance since the receipt of the injury. He urinated frequently during the day and night but without much distress. In the meantime his wife, who had been sick a long time, died. He had worried a great deal because of her long sickness and had worn himself out in his devotion to her. During this period he had been under the observation of Dr. Heffron.

Examination showed a large tumor in the abdomen on the right side extending down to the level of the umbilicus and reaching over to the middle line of the body. It was tense and fluctuated but was not particularly tender. It was fairly movable. A specimen of urine voided at three o'clock in the morning, was found to be straw-colored, very turbid, alkaline, sp. gr. 1.010. contained albumin, no sugar, earthy phosphates normal, total eight per cent. Ten slides were examined for tubercle bacilli with negative results. These slides were made from the sediment centrifugated from a pint of urine which he had passed. The pint contained about three drams of mucopus. Microscopical examination showed a field full of pus and red blood cells.

On May 4, 1904, I operated upon him at St. Joseph's Hospital, assisted by the hospital internes and in the presence of Dr. Heffron. His general condition was very satisfactory. An anterior incision was made along the outer border of the rectus extending from the ribs to the level of the umbilicus. The presence of the left kidney was determined by palpation through the abdominal wound. The diseased kidney was found to be adherent to the large intestines. The adhesions were so firm and the kidney was so disorganized that in separating the tumor the sac ruptured. The adhesions were very extensive. The kidney was freed with great difficulty. A dozen or fifteen vessels required ligation. The peritoneal cavity was protected with gauze pads, so that despite the escape of a quantity of purulent discharge there was no contamination. The ureter was cauterized with carbolic acid. Posterior drainage was established through an incision in the loin; gauze was used for drainage. The abdominal wound was closed with catgut in separate layers; first the peritoneum, then the muscle, then the aponeurosis, and finally the skin, burying the sutures throughout. The patient bore the operation very well.

Upon section of the kidney, its center was found to be occupied by a stone of the shape of a butterfly, its transverse diameter being 2½ inches. It presents a projection which dipped down into the ureter. At no time after his operation did the patient have any rise of temperature or any abdominal disturbance. The gauze tape was gradually withdrawn. However, there was for a time a little purulent discharge and it was decided, two weeks after the operation, to introduce a drainage tube instead of the gauze. The patient remained at the hospital for four weeks. The sinus healed rather slowly, continuing about ten weeks after operation. The man is now in perfect health and has no discomfort whatsoever.

The specimen which I show you is five inches long and 2½ inches in its transverse diameter. At points the kidney substance is much thickened; at others friable. The perinephric tissue is very adherent to it. Dr. Steensland makes the diagnosis of a calculous hydronephrosis which became, later, as the result of a subsequent infection, a hydropyonephrosis.

Case III. Enormous Hydropyonephrosis due to Acute Insertion of the Ureter; Nephrectomy; Recovery.—Mr. M., aged thirty-eight years; married; had been superintendent of construction of the Boston Tunnel for two or three years. For a year he had worked in compressed-air underground but during the last year worked above ground. He had been a moderate drinker; denied ever having had any venereal disease. I saw him April 1, 1904. He stated that some six or eight weeks before he had been seized with pain in the right upper quadrant of the abdomen. Soon after it began to increase in size especially at this point. He had been under the care of two physicians who tapped him first in the middle line of the abdomen but finding no fluid, subsequently entered the trocar into the right side of the abdomen above the level of the umbilicus and drew off 4⅝ quarts of a dark-colored fluid. At this time he was at the Hospital of the Good Shepherd. There was gradual reaccumulation of the fluid. At the time of my examination, April 4, I found a well-defined cystic tumor which reached below the level of the umbilicus and was quite fixed and immovable. The specimen of urine excreted at that time was straw-colored, very turbid, sharply acid, sp. gr. 1.020, contained no sugar but a large percentage of albumin. The earthy phosphates were normal, total 10 per cent. The turbidity of the urine was due to pus, which was evident macroscopically as well as microscopically. A second specimen of urine presented the same characteristics.

The patient entered St. Joseph's Hospital, where Dr. Elsner saw him with me. The diagnosis of a large hydropyonephrosis was made.

On April 7, 1904, assisted by Dr. Coon, and in the presence of Dr. Elsner, I opened the abdomen through the right semilunar line, making an incision six inches in length. By means of an aspirator we withdrew four quarts of purulent fluid before the tumor was lax enough to permit of its separation. The sac was very adherent to the intestine. The adhesions were very cautiously separated. The bleeding was quite free, about fifty vessels requiring ligation. The peritoneum was very adherent. The pedicle was finally exposed and the sac cut away. Everything was carefully cleaned with saline irrigation. Gauze drainage was established through the loin. Operation occupied about two hours. The abdominal wound was closed with catgut in separate layers, all sutures being buried. Six

hours after completion of operation patient was in good condition and 3½ ounces of urine were withdrawn by catheter. During the twenty-four hours succeeding the operation 24 ounces of urine were excreted. On the third day the temperature rose to 103° F., but gradually subsided and returned to normal at the end of a week. His pulse was of good character throughout. There was some suppuration along the line of incision and quite a free discharge of pus from the loin; a rubber drainage tube was substituted for the gauze. The discharge was foul in character and antiseptic irrigation through the drainage tube was necessary. The patient was up and about in the course of a month but remained in the hospital another month because of the persistent suppuration. His only subsequent complaint was one of sagging and weakness throughout the abdomen. This was overcome by means of an abdominal supporter. He has continued in good health since he recovered from the operation and has been at work for a number of months.

Examination of this kidney shows it to be ten inches long and five in its transverse diameter. It is very irregular in shape and the capsule is firmly adherent. The pelvis is extremely dilated and forms about two-thirds of the entire mass. What little kidney structure remains is crowded backward and outward and presents a thin-walled sac. The ureter unites with it at an acute angle. Dr. Steensland believes this to have been the cause of the hydronephrosis which subsequently became a hydropyonephrosis.

Case IV. Tuberculosis of the Kidney with Extensive Suppuration and Destruction of the Organ; Nephrectomy; Death.—Miss D., age twenty-seven years; unmarried; seamstress; was admitted into St. Joseph's Hospital June 3, 1904. Her father and one sister had died of pulmonary tuberculosis. As a child she had pneumonia, measles and inflammation of the bowels. She began to menstruate at thirteen and was always regular. She suffered a great deal from dysmenorrhea and had been operated upon by Dr. Herrick, of Troy, two years before, at which time the uterus was anchored and the appendix removed. She remained well until within a few weeks when she began to suffer from sharp pain in the right side of the abdomen. This pain radiated into the right loin. There was constant soreness but the pain was intermittent.

On June 2, the day before her admission into the hospital, she was seized with griping pain in the abdomen, which she attributed to the eating of bananas. On the following morning she had a severe chill and her temperature went up to 105.4° F. She was immediately brought to the hospital and it was found while she had some illy-defined abdominal tenderness, there was no rigidity. The pulse was 133. A leucocyte count showed the presence of 13,000 to each cubic millimeter. The urine contained a large quantity of pus. The abdominal symptoms subsided very promptly. An examination showed no disease of the heart, lungs or liver. In the right upper quadrant of the abdomen extending to the border of the ribs below the level of the umbilicus a large tender mass was palpable. It was rather fixed and could not be pushed upward but could be moved slightly laterally. Further questioning elicited the fact that the patient had lost about 16 pounds in a corresponding number of months and that she had been suffering from night-sweats. A specimen of urine was examined and found to be straw-colored, turbid, alkaline, sp. gr. 1.025, contained some albumin, no sugar, earthy phosphates decreased, total four per cent.; microscopically an excess of pus cells and a few round cells. Daily examinations of the urine were made for ten days. In every subsequent instance an acid urine was found containing a trace of albumin, large quantities of pus varying from 2½ to five per cent. of the amount of urine discharged; specific gravity in the main 1.015 and 1.017. Tubercle bacilli were found in several specimens. During the same period daily examinations of the blood were made. A leucocytosis was found to be present each time varying from 12,000 to 20,000, with an average of 14,700.

On June 23, assisted by Dr. Coon, I operated upon the patient. She took her anesthetic nicely. An incision was made through the right semilunar line. The peritoneum was very adherent to the kidney; one loop of intestine was likewise adherent. The kidney was fixed on all sides by adhesions. The ureter had a diameter of 1½ inches and as far down as one could trace it the same degree of dilatation was present. On the inner side the vena cava was adherent throughout its entire length. After a great deal of trouble I stripped the kidney out of its capsule and separated the adhesions. In doing this the vena cava was torn but immediately clamped and the loss of blood was not great. It was promptly sutured and the hemorrhage from it controlled in this way. The renal vessels were also torn. The patient bore the operation very poorly, At this point she went into collapse and required an intravenous saline injection. This improved her condition somewhat. There was quite a little difficulty in securing the bleeding vessels of the pedicle as they were so friable. A loop of the large intestine was also torn in separating the adhesions. This rent was immediately closed by suture. The outer opening in the loin was made for drainage and anteriorly the peritoneum was closed with catgut while the remaining structures were brought together with silkworm gut. The operation consumed an hour and three-quarters. The patient went into a condition of collapse after being put to bed and lived but six hours after the completion of the operation.

The specimen herewith presented exhibits but little resemblance to a kidney either in form or substance. It is six inches long and three wide. The upper pole is somewhat smaller than the lower. The pelvis is considerably dilated, thick-

ened and nodular. The perinephric tissue as well as the capsule are firmly adherent to the kidney. Islands of caseous degeneration can be readily seen upon various points on the surface of the kidney, and numerous areas exhibiting groups of characteristic tubercles. Upon opening the kidney no normal structure was found. The entire organ was replaced by broken down tuberculous tissue.

The four cases presented to you might be arranged in three groups; the first and third being grouped together. In these two cases we had to deal with a hydro- or a hydropyonephrosis without apparently a provoking cause. In Case I there was a large cystic tumor, too large to be carried up into the loin, which presented but few adhesions and permitted of very easy removal. Scarcely any shock attended the operation nor was there any disturbance in the postoperative course of her case. It is assumed that we had been dealing with a kidney in which the faulty position of the ureter was responsible for the subsequent hydronephrosis. We must not overlook the fact, however, that the tumor was first discovered in the iliac fossa. This fact suggests the possibility of a movable kidney in which a kinking or twisting of a ureter occurred.

Case III presents some very unusual features. The sudden onset is most unusual while the enormous size is particularly remarkable. A kidney which held over a gallon of fluid and from which this amount was removed by tapping and which in the course of a very few weeks filled again to a like extent, is, to say the least, noteworthy. This kidney was so immovable both because of its size as well as the extensive adhesions, that it was impossible to begin to free it until a gallon of fluid had been withdrawn. Despite these conditions and the friability of the sac and the extensive exposure of the abdomen necessary, there was not the slightest leakage into the peritoneal cavity nor were there manifestations of peritoneal infection evident at any time. This is the more remarkable as the involvement of the intestines led to an infection of the wound cavity so that there was a discharge of a quantity of foul pus each day which had a decidedly fecal odor. There was not, however, at the time of operation nor subsequently any evidence of injury to the bowel. It is assumed, however, that there was a migration of colon bacilli into the wound cavity.

The second case is likewise one of great interest particularly from an etiological standpoint. Was the man affected with the calculous condition of the kidney prior to the injury he sustained or was the traumatism the provoking cause of the disease in his kidney? I know of no way of determining this matter absolutely. There was no positive history of renal colic or other disturbance of the urinary tract prior to the receipt of the injury, whereas from the date thereof there was always some evidence of a damaged kidney. However, I am quite inclined to agree with Dr. Steensland that the calculous disease antedated the traumatism and the latter provoked an active disturbance which resulted in the production of a pyonephrosis. There is no doubt that there was a very sharp perinephric inflammation as a result of the injury. The adhesions encountered clearly indicated this. His recovery has been complete.

The only fatal case in this group was that of the young woman suffering from an extensive tuberculosis of the kidney. She was greatly reduced by the disease and its attending suppuration. There was profound anemia, persistent leucocytosis, very weak resistance and very extensive adhesions to and involvement of the surrounding structures. It is interesting to note how little blood was lost as a result of lacerating the vena cava and also how completely the hemorrhage from this vessel was controlled by suturing the rent.

You will readily note in examining this kidney that the destructive tuberculous process involved its entire substance, leaving nothing to suggest even the character of the organ. While the patient bore the operation poorly and did not rally from the shock attending it, it is very evident that greater difficulty would have attended the operation had the removal of the organ been attempted through the lumbar route. These cases at the best are most unpromising. This one because of the fixation of the mass presented especially unusual difficulties.

It seems to me that as we study each of the cases presented, we find not only ample justification in selecting the abdominal route, but while it would not have been impossible to have accomplished the removal of the kidney by the lumbar incision, the difficulties attending such a procedure would have been much greater than by the method selected.

I certainly do not wish to be understood as recommending the abdominal operation in preference to the lumbar in all nor yet in the greater number of cases requiring nephrectomy. However, I do believe that the abdominal operation is not performed as frequently as it should be. The books attach to it too great a mortality. When the tumor is of great size, when it is placed well down in the pelvis, when it is fixed by extensive adhesions, in a word, where it is necessary to have an abundance of room to expose the field of operation to remove tumors of large size or where firm adhesions are to be encountered, I believe the abdominal route to be less dangerous than the lumbar.

New Eye Hospital.—The eye hospital, founded in Paris, under the provisions of Baron Adolphe Rothschild's will, will be opened for the reception of patients in about a couple of months. It is close to that extraordinary and picturesque specimen of landscape gardening, the Buttes Chaumont, in the crowded quarter of Belleville, in the midst of a large working-class population. The staff includes, among others, Trousseau, Sulzer, Millée, Florand, and Picqué.

MEDICAL PROGRESS.

SURGERY.

Acid Intoxication.—The study of this form of intoxication found its inception in the observations which were made upon cases suffering with diabetes mellitus. So-called diabetic coma was supposed to be due to the presence of acetone in the blood. Recently, however, it has been shown that acetonuria is a much more common disorder than was formerly supposed, the assumption that it was confined to diabetes having been proven to be absolutely erroneous. JAMES A. KELLEY (*Annals of Surgery*, February, 1905) states that acetone was first recognized as a pathological constituent of the urine in connection with diabetes by Tetters in 1857. Kaulish at the same time reported a series of cases of diabetes in which he found acetone, and in which he considered the coma to have been produced by this substance. Kussmaul, in 1874, took exception to this theory, and at a later period, Gerhardt and others demonstrated conclusively that acetone was associated with diacetic acid and B-oxybutyric acid in the blood of diabetic patients. What part the acetone may play in the lethal process may not be known, but it has long been recognized that patients in whom this substance occurs freely in the urine always take an anesthetic badly. Brewer, in 1902, reported a fatal case of appendicitis, which he considered to have been caused by acetonemia. An excess of acetone and diacetic acid has been recognized in the following conditions: (1) Diabetes, (2) starvation, (3) malignant growths, (4) digestive disturbances, (5) in septic processes, (6) in infectious fevers, (7) in pregnancy associated with the dead fetus, (8) in certain psychoses, (9) in auto intoxications, (10) in chronic morphinism, (11) in phosphorous poisoning, (12) following general anesthesia, (13) in injuries of the cerebrospinal system, (14) in shock, (15) in fatty liver, (16) probably in cases of uremia, (17) experimentally by the administration of phloridzin and by extirpation of the pancreas and solar plexus. None of the theories so far offered have explained the cause of this acid intoxication. Lambert considers that the condition found in eclampsia may be identical with that observed in acute yellow atrophy of the liver. The author considers that while the theory of intracranial pressure or of cerebral concussion suffices to explain a small number of the cases observed, a great deal more experimental and clinical work will have to be done on the subject before any definite conclusions can be reached. In conclusion the author states that the amount of acetone found in the urine is no index as to the severity of the affection. Whether the symptoms are due to the circulation of toxic substance acting on psychomotor centers or whether they are due to pressure upon these centers is not yet known. Some toxemia is certainly present whether due to fatty acids, to the rapid destruction of proteid matter or to the rapid elimination of the alkalis is also unknown.

Pyloroplasty.—This operation has more or less fallen into disuse in this country and in England. According to RUTHERFORD MORRISON (*Lancet*, February 11, 1905) this is not so much because the operation has been tried and found wanting, but because of the brilliant results recently obtained by the believers in the operation of gastro-enterostomy. The author believes that enough of these operations have been done, because it takes time to discover that there may be serious objections to new operations. It took ten years to discover that myxedema might follow the removal of the thyroid. It is not altogether improbable that such a revolution of the chemical and physical processes of digestion as is involved in a successful gastro-enterostomy will be followed by more or less serious consequences. The author has performed pyloroplasty in 20 cases up to 1898. All these cases recovered from the operation and their after history is as follows: One cannot be found and two are dead. One, a woman aged fifty-nine years, died eighteen months after the operation, from malignant growth. In three the symptoms have recurred, necessitating a further operation. In two of these cases, recurrence was due to stricture. In the third the patient had complained more or less since her first operation. She has always looked healthy and well in spite of her gastric complaints. At the second operation the pylorus easily admitted three fingers. Of the remaining fourteen, eight may be said to have been absolutely cured. In one of the remaining six no definite organic obstruction was found and the patient has gained in weight. In one the patient occasionally vomits and she is still gaining in weight. In another the symptoms are slight. The gain in weight is maintained. In another the patient has lost weight during the last three years. Two more may be looked upon as vastly improved.

Septic Origin of Gastric and Duodenal Ulcer.—That the condition may be brought about by sepsis is suggested by the résumé of the following case: W. B. CLARKE, (*Lancet*, February 11, 1905) reports the history of a man, fifty-five years of age, who has suffered for six years from gastric ulcer. For many years he had been a sailor. Just six years ago he was shipwrecked and spent sixteen days in an open boat before he was picked up. During this time he lived on moldy, maggoty bread and putrid water. He immediately developed symptoms of gastric ulcer, viz., violent pain and black vomit. Robson and Moynihan had suggested that oral sepsis might be responsible for a number of duodenal ulcers and this supposition seems to be strengthened by the above recited case.

Rational Treatment of Fractures.—There is little room for doubt that less attention has been given to the subject of the treatment of fractures than to many other departments of surgery in the last twenty years. J. STAFFORD MELLISH (*Lancet*, February 11, 1905) considers that the use of the old-fashioned rigid apparatus whether of wood or plaster-of-Paris, is not alone unnecessary but prejudicial to the best interests of the case. He believes that if the surgeon will devote his chief attention to keeping the circulation of the limb in a healthy condition, the results will be better and the less splinting he can get along with. The patient should be persuaded to indulge in all the movements that the joint is capable of. He recites a number of cases and concludes that if fractures were treated more along the lines suggested, there would be less opportunity for the press to teem with the marvelous cures of the so-called bonesetter fraternity.

Alcohol Dressings.—Attention is called to the value of this form of surgical dressing by BRUGGER (*Deut. med. Woch.*, February 16, 1905), who praises it very highly and advises its more general application. It may be applied as follows: The affected part is covered by about eight loose layers of gauze which are saturated with alcohol and over this is placed a thick pad of absorbent cotton. Some impervious material is then placed over the whole. The dressing should be sufficiently large to take in a considerable area on either side of the affected portion. The writer believes that as good results may usually be secured with alcohol of about 50 per cent. strength, as with that of 96 per cent., which was at first employed. It is important to see that the skin is perfectly dry before this dressing is applied,

if macerated, a caustic effect is likely to result. Open wounds should also be protected from direct contact with the alcohol by a packing of dry gauze. The dressing may be kept moist and should not be changed in less than twenty-four hours. The conditions most benefited are inflammations of the skin and lymphatics, where it has a well-marked anodyne effect in addition to inhibiting to a certain degree the infection.

Cervical Rib.—D. N. Eisendrath, less than a year ago, was able to find 34 reported cases of cervical rib which presented surgical symptoms. JOHN T. MURPHY (*Annals of Surgery*, March, 1905) states that the development of a cervical rib is either from the center of the transverse process of the sixth or seventh cervical vertebra or from a separate center of ossification. It articulates with the body and transverse process of the vertebræ in the same manner as the thoracic ribs. Most cases requiring surgical care arise from individual centers. The anomaly apparently does not develop until an average age of twenty-seven years. It appears thus that the development of the rib is in a measure synchronous with the eruption of the wisdom tooth. Why this is so is not known. In Murphy's specimen the base of the rib is measured three-eighths of an inch, while at the tip, where it curved downward to become attached to the first rib, it measured seven-eighths of an inch and was flattened from above downward. According to Eisendrath these cervical ribs exist normally in crocodiles. The rib in its development may press forward the nerve trunks and the subclavian artery above it, so that the pulsation of this vessel is the first sign of trouble. Edema is not a common symptom. This shows that the vein in the thirty odd cases reported has rarely been pressed upon. As proof that occasionally this rib may be of congenital origin, it may be stated that the scalinus anticus may occasionally be found attached to it. The cervical rib exists on both sides in 67 per cent. and on one side in about 33 per cent. The symptoms in cervical rib are, (1) those due to pressure on the nerve trunks; (2) pressure on the subclavian artery; (3) tumor formation in the supraclavicular triangle. Murphy's patient was a farmer, thirty-eight years of age. Symptoms began as tingling and numbness in the last phalanx of the left index finger. The pain gradually became intolerable. One inch above the clavicle, a pulsating expansile tumor was evident. The subclavian artery was exposed, the rib was freed and divided. It was detached. It was detached with the bone forceps and the wound closed. There was a normal convalesence and immediate cessation of the disturbance. The diagnosis of the condition in its early manifestation is a difficult one. Palpation is often more satisfactory than the X-ray in establishing the diagnosis.

MEDICINE.

Splenomedullary Leucemia.—Drs. EVERETT J. BROWN and CECIL M. JACK reported in the *Journal A. M. A.*, March 26, 1904, a case of splenomyelogenous leucemia symptomatically cured by X-ray treatment. In the *Journal A. M. A.*, March 25, they report the final outcome of the case with autopsy findings. In the fall of 1904 the patient began to become weaker, the spleen enlarged again and he finally succumbed with typhoid-like symptoms just sixteen months after first coming under observation. The microscopic examination showed a somewhat enlarged spleen, some kidney lesions and no special gastrointestinal abnormalities. The pathologic examination showed a marked fibrosis of the spleen with a general picture of splenic anemia, no evidence of leucemia in the intestines or lungs, extensive deposits of lime salts in the kidneys involving especially the convoluted tubules, and the lymph glands showed a lymphoid hyperplasia resembling that of lymphatic leucemia, these being the only pathologic findings suggestive of leucemic disease. Dr. A. S. Warthin, of Ann Arbor, who made the pathologic examination, remarks that the only conclusion justified by the findings would seem to be that the X-ray treatment had resolved the leucemic condition into an aleucemic state, but that the essential disease process, as shown by the lymph glands, was still active. The leucocytes have been removed from the general circulation and from the areas of infiltration, and the splenic changes seemed to be secondary. The remarkable condition in the kidneys offers room for some speculation as to the source of a toxin such as might result from very extensive destruction of leucocytes. No specimen of bone marrow was secured, which the authors regret.

Visceroptosis.—This condition is synonymous with chronic invalidism. The downward displacement is without symptoms so long as the patient is in good physical condition. Occasionally local symptoms may arise from an organ as Dietl's crisis, or intermittent hydro-necrosis in a movable kidney, and other well-known conditions. When symptoms, however, associate themselves with prolapsed viscera, they are, as a rule, those of neurasthenia and are not cured by mechanical replacement of the offending organs. HUGH A. MCCALLUM (*Brit. Med. Jour.*, February 18, 1905) states that these patients should be put upon a modified Weir Mitchell treatment. The frequency of these ailments is startling. Over 90 per cent. of the cases of neurasthenia in the female are victims of visceroptosis. This disease is less prevalent in the male neuresthenics. Clinically, the etiological factors of importance are: bad standing posture, badly fitting garments, imperfect use of the lower zone of the thorax, absence of fat and want of tonicity of the abdominal muscles. Taylor and Keith were the first to point out that the origin of this disease begins in a faulty position and use of the thorax. On account of the backache and pelvic dragging, the symptoms of visceroptosis frequently point to the gynecological lesions. Unfortunately, however, it is not alone the uterus which is tilted back and in disorder. This is but a small portion of the evil condition existing. The skin of these patients is usually peculiarly atrophic. It is free from fat and devoid of elasticity. It is well known that dermatographia is a characteristic stigma of neurasthenia. The lower zone of the thorax falls in. It is unquestionably the shape of the thorax that has to do with the condition. The abdominal cavity can be conceived of as a joint. The health of the cavity can be fairly well gauged, as in the case of the joint, by the tone of the muscular covering of that cavity. The treatment of these cases should obviously begin early. Meek has well said that their cure should begin before they are born. In other words, everything possible should be done to develop the chest; for the acute attack typical Weir-Mitchell treatment is indicated. Hemoglobin should be carefully studied as well as the percentage of erythrocytes. It is well known that these increase more or less in proportion to the increase of body-weight. The distribution of fat in the male and female is different, the male carrying his on the shoulders, neck, back and abdominal cavity, the female carrying hers in the breast, buttocks and thigh. A departure from this type should arouse suspicion of arterial sclerosis. Massage promotes muscular development by increasing muscular feeding. It not alone assists the patient to get control of the lower neurons, but of the upper neurons as well. On account of the lesion of the thorax, it is not uncommon nor unlooked for that

phthisis and visceroptosis should often run hand in hand. Indeed, they are combined in about 50 per cent. of the cases. Hydrochloric acid, in the opinion of the author, is most frequently diminished in dilatation of the stomach.

Preliminary Report on the Treatment of Chronic Dysentery, by Irrigation of the Colon Through the Vermiform Appendix, or an opening into the Cecum.—W. H. Arthur (*Med. Rec.*, March 25, 1905) has carried out the treatment of dysentery by this plan in six cases, and is very favorably impressed with the results, although he considers the number too small to enable definite conclusions to be drawn. The advantages of this method of irrigation over the deep rectal injections are: (1) The irrigating fluid is delivered first at the point shown by experience at the post-mortem table to be the location of the most extensive lesions, and is carried from there by the natural peristaltic movement of the colon to the outlet. Rectal irrigations, to reach even the transverse colon, must overcome this natural tendency of the bowel to drive out any foreign substance. (2) It is entirely painless, and very much easier for the nurse to administer. Indeed, the patient can soon be taught to do the irrigating himself. (3) It is possible to keep it up much longer, for rectal irrigations soon become so distressing that they must be discontinued for long periods.

Pathology and Treatment of Leprosy.—The antagonism which has been shown to exist between certain pathogenic organisms having been pretty thoroughly worked out and classified, is beginning to be a ground work for most important researches. Capt. E. R. Rost (*Brit. Med. Jour.*, Febrauery 11, 1905) has observed that the bacillus of tuberculosis can be made to grow very rapidly by eliminating the salts of chlorin from the nutrient media. Chlorin, however, is so universally distributed, that the removal of these salts proves by no means an easy matter. Were it not for the fact that they could be removed with ease by chemical processes, except in this particular instance, where such processes would ruin the nutrient media, the problem would not be so difficult. The bacillus tuberculosis will grow in a fluid of low nutrient value, but one prepared by a distillation of extract of the beef, and containing only the volatile substances of the beef by passing steam from an autoclave through the extract, and so will the germs of leprosy and the bacillus of Lustgarten. In this medium a growth of tuberculosis germs can be had in from one to three days and the leprosy in from three to five days. It is, however, very difficult to obtain a solid medium on which to grow the bacillus, as agar contains a large quantity of chlorin. The writer succeeded in preparing a satisfactory medium by dialyzing nutrient agar in frequently changed, warmed, distilled agar. The bacillus of leprosy grows at first as a white and later a yellow or brick red, curly thick growth on the surface of the agar, very much as the bacillus of tuberculosis grows on the surface of glycerinized nutrient agar. From these cultures the author has prepared a toxin which he calls leprolin. This is prepared in similar lines with tuberculin. Leprolin prepared in this way will produce a powerful reaction in case of leprosy, which will last for three days or more. The author has prepared 500 doses of leprolin and has injected it in 120 cases of leprosy and in each case there has been the same reaction. Leprolin is now being used in 30 different places in India, but owing to the difficulty of preparation, only 20 doses per diem can be made with the present outfit. Reaction of leprolin may come on very soon after the injection, the temperature running up to 104° F. The dose now is 10 c.c. of a glycerinated preparation. The most remarkable effect of the injection is the suddenness with which sensation returns in the anesthetic patches. It further relieves the shooting pains of the limbs and joints and causes a disappearance of the feeling of weight in the legs. It makes the rough skin smooth. Areas which had been anesthetic before become tender to the touch. It causes ulcers to heal, sometimes after one injection. The same leprolin and the same preparation of the same culture will not always produce the same reaction in all cases of leprosy. As the results of treatment, it seems certain that four cases have been permanently cured. The number of cases now under treatment in Burmah is about 100. The author refutes the well-known absurd theory that the organism can enter the body through the consumption of badly cured fish, the demonstrated aversion of the bacillus of leprosy to salt proving beyond peradventure that it could not possibly be contained in the fish so often referred to.

OBSTETRICS AND GYNECOLOGY.

Placental Syphilis.—A certain amount of obscurity is still attached to the affections of the placenta in the syphilitic mother, according to Quierel. (*Annales de Gynéc. et d'Obstet.*, December, 1904). The syphilitic placenta is pale and more friable than the normal organ. While the ratio between the weights of the placenta and the fetus at term, in the healthy woman, is 1 to 6, in the syphilitic patient it is 1 to 4. This relative and absolute increase in weight of the placenta is due to a proliferation and sclerosis of its anatomic elements. There are three types of lesions: those that affect the blood vessels, the villosities and the connective tissue, respectively. The first is essentially an obliterating endarteritis. The second consists of an hypertrophy of the villi, which are infiltrated with embryonal tissue. There is an hyperplasia of the connective tissue elements. There is a general thickening of the cord, an infiltration and an induration of all its elements. The lesions of the fetus and those of the placenta are parallel. In some cases one may follow the continuity of lesions along the umbilical vein into the liver.

Gonorrhea as a Cause of Death.—Joseph Taber Johnson (*Journal A. M. A.*, March 11), reviews the opinions of authorities as to the effects of gonorrhea in producing female sterility and disease, and states his belief that if the mortality from this cause could be ascertained it would be found to equal that from either typhoid fever, pneumonia or tuberculosis, and that possibly it might be found to exceed the mortality from all three diseases. He thinks that gonorrhea is the cause of at least 30 per cent. of the deaths among prostitutes, and that through its later effects on the generative organs it may be the cause of death in a very large number of virtuous married women.

Ulcer of the Stomach at the Menopause.—A. Borri (*Centralbl. f. Gyn.*, February 18, 1905) says that ulcer of the stomach at or shortly after the menopause is frequent although there is nothing in the literature concerning the subject. Twelve cases are reported from Cohnheim's Polyclinic in Berlin. In all cases the disturbances began with the cessation of menstruation. The occurrence of the ulcer of the stomach is thought to have an undoubted relation to the circulatory disturbances of the climacteric, thus demonstrating again the truth of the hypothesis of Virchow that insufficient or disturbed circulation of the blood, although not the only cause, is an important etiological factor in the formation of ulcers of the stomach.

Rupture of the Vagina in the Act of Copulation.—The possibility of a rupture of the vagina during copula-

tion is an unquestionable fact and Balin (*Roussky Vrach*, January 15, 1905) found some 200 cases mentioned in literature. His own case was that of a maiden, of twenty-five years, in whom there was no question of rape, as she submitted to the act voluntarily, nor was there any undue force exerted by her partner. The etiology of this occurrence is not quite clear, and the various theories accounted for, such as tempestuous sexual excitement, unusual posture, and the like, are hardly tenable, for if such be the case, remarks Wannan aptly, then the number of similar accidents would be enormous. These causative agencies are only effective in the presence of some more important, and possibly, principal conditions. The author inclines to Vert's assumption that the histological structure of the mucous membrane of the organ presents the predisposition to rupture in some women. There is in such patients a certain loss of elasticity of the canal, a greater vulnerability, in short a condition of rigidity. This is physiological in women of a certain age, but may also be met with in young women during or after pregnancy, or in consequence of certain diseased states, such as in some varieties of vaginitis, or after the use of strong caustics, etc. On the other hand, there is an undoubted congenital aplasia or rigidity of the vaginal walls, and in the presence of other factors a rupture is quite likely to take place, although the entirely normal act may pass without its occurrence. From a medico-legal standpoint some authors are of the opinion that a rupture of the vaginal walls excludes the possibility of rape.

Contribution to the Pathological Anatomy of Puerperal Eclampsia.—Considerable attention has been lately paid to the rôle which the liver plays in this condition and in order to obtain a more definite picture of the actual changes which take place in this organ, H. Peterson (*Zeitschr. f. Geb. u. Gyn.*, Vol. 53, No. 2) has studied the histological changes by the aid of a new stain which affords a much clearer insight into the processes which occur in the hepatic cells. The stain is a differential one and for the details of its employment, reference must be made to the original article. The author claims to have demonstrated that the same processes occur in the liver which have already been noted in the lungs and kidneys of other eclamptic cases, consisting mainly of the excretion of fibrin, hemorrhages and thrombosis. All three of these phenomena were observed in the case which the writer reports, either together or independent, and the liver cells enclosed by the hemorrhages and the masses of fibrin, gradually undergo necrosis. No necrosis was observed, however, as the result of thrombus formation.

PRESCRIPTION HINTS.

The Treatment of Asthma.—Hygienic, dietetic, and medicinal treatment of this neurosis forms the subject-matter of the paper by G. Carriére (*Annales de la Polyclin.*, March 1, 1905). The hygiene includes life in the open air, with avoidance of climates of high altitudes, or where the winds are strong, where the barometric or thermometric variations are extreme. Humidity is bad for asthmatics. The wearing of woolen undergarments, moderate exercise, hydrotherapy, massage, and alcoholic rubbings followed by dry friction, are recommended. As regards diet, moderation, particularly at the evening meal, at which meats should be excluded, should be observed; to be shunned are game, pork, preserves, cheese, tomatoes, sorrel and asparagus. Tobacco and alcohol should be avoided, and coffee should be used in moderation. The medicinal treatment is indispensable. The use of iodide of potash is essential, and is to be given in daily doses of .05 gm. for each year of age in the child and from .50 to 1. gm. per day in the adult. The following formula is recommended:

℞ Decoct. of 3 gms. polygala root.....100.00
Aquæ destill. 140.00
Eau de vie. 60.00
Tinct. lobeliæ. .....10 to 40.00
Potass. iodid. ..... 1 to 10.00

M. et S. Two tablespoonfuls daily, at meals.

Arsenical medication is also of value. The sodium arsenate may be given to children over two years old in daily doses of .0002 for each year of age, and to the adult .005. Trousseau has recommended the following prescription:

℞ Extract. belladonnæ..... } aa 0.01
Pulvis radic. belladonn..... }

F. pilula. S. give one daily and increase every other day with one pill. Treatment to last ten days in the child.

The tincture of belladonna may be used, two drops for each year of age, in the child. Von Noorden uses the sulphate of atropine, .0001 gm. daily, to be increased gradually until the daily dose is .0004. The association of the various agents mentioned above may be used as follows: (*a*) For ten days in the month, belladonna in its various forms may be administered. (*b*) For the rest of the month should be employed the following:

℞ Decoct. 3 gms. polygala root.....100.00
Aq. dest. 100.00
Tinct. lobeliæ ..... 10 to 40.00
Arseniate of soda ..... .004 to .10
Potass. iodid. ..... 1 to 10.00
Potass. bromid. ..... .50 to 10.00

M. et S. One tablespoonful twice daily.

During this time, the patient should smoke, every other day, one of the Despic cigarettes, made as follows:

℞ Folia bellad. ..... .30
Folia hyoscyami..... } aa .15
Folia daturæ..... }
Folia phellandii ..... .05
Macerate in a mixture of
Gummy ext. opii..... .013
Cherry-laurel water.....q. s.

Dry, cut fine, and make cigarettes with paper impregnated with the same liquid.

Electrotherapy has given excellent results. Every eight days the patient should get a pill containing .10 gms. of aloes. During the attacks the windows should be opened, avoiding possible chilling; sinapisms should be applied to the feet; a little of the following ointment should be inserted into the nostrils:

℞ Cocaine ..... .05
Menthol ..... .10
Vaselin 10.00

The patient should inhale 5 to 15 drops of pyridine on a handkerchief, and smoke one of the Despic cigarettes. He may inhale the vapor of water containing carbolic acid. Morphine (0.01) may be injected. If the heart is feeble, administer caffeine. If asthma is a symptom of various morbid conditions, as bronchitis, emphysema, heart and renal disease, these should receive attention.

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SANITATION AS AN ISSUE IN LOCAL POLITICS.

THE approach of a municipal campaign suggests a useful outlet for the energies of the many medical men in New York who are interested in sanitary reform. In a word, sanitation should be made a live issue in local politics. The suggestion has been made before; only lately it was emphasized in an address delivered in New York by Surgeon-General Walter Wyman, of the Marine Hospital Service (page 726). The hopes of those who have advocated the idea have not been realized, however, because they have been content to state their views before medical societies instead of planting the main thought in the minds of practical politicians, through whom it can be brought speedily home to the whole community.

It is time now to descend from the realm of thought to the world of action. The first step once taken, the rest will be easy; for political capital can be made out of the indisputable need of sanitary progress, and the political organization which first takes hold of the idea in a sincere and sensible way will gain much by allying itself with a cause which cannot fail to become popular. The result can be nothing but good.

It may be said that the idea of sanitary improvement is not entirely new in municipal politics. The Citizens' Union and other organizations are committed to the policy of extending the system of free public baths, and the more significant notion of dotting the tenement districts with small parks and playgrounds has found a permanent place in political platforms. Originally the hobby of a small group of enthusiastic reformers, this latter innovation has now secured the recognition of all those who desire general support on election day. Its partial realization has let the light into many spots that were once dark and dreary, and its further development will aid materially in promoting the welfare of the least favored classes among our urban population. But the introduction of these indispensable breathing-spots is only one step, and a very short step, toward the distant great goal of a slumless city.

It has been said that no home is complete without a garden. The small parks of the tenement districts are the home gardens of the air-hungry poor; but they cannot, of themselves, make worthy and fit for human habitation the dark and crowded tenements of the neighborhood. Light and air are needed not only for those who are able to go out into the parks, but also for those who, whether from the necessities of their daily occupation or from illness, are compelled to stay indoors. There can be no real hope of the abolition of contagious diseases until the slums cease to exist. The wise sanitarian will demand and will accept no less than this. To make the object clear, the method plain, the voices of medical men must be heard in the approaching political councils, and they must not be silenced until "a slumless city" has become a victorious campaign cry.

THE RAINBOW ON THE ISTHMUS.

THE electric storm which has recently been centered in the Canal Belt has subsided with the abolition of the previous commission and the threatening clouds have passed away, leaving a brilliant rainbow, as far as the future sanitation of the Isthmus is concerned.

The belief, however, that the executive powers have been influenced in the slightest degree by the hasty report of Dr. A. L. Reed is untenable. In the first place, the Secretary of War would hardly have been governed by charges which he has characterized as "biased and controversial, and not written in the judicial spirit that inspires confidence in their justice and accuracy." Nor would the President of the

United States have been swayed by statements that he denounces "in many instances as unwarranted by facts" and by "accusations" which he declares "in many instances to be unsupported by proof."

In the second place, it has been widely known for a long time, even outside of Administration circles, that the Executive was dissatisfied not with the personnel of the Board itself, but with its circumlocution and the dilatory way in which its work was accomplished, and as a matter of history the now celebrated letter to Congress foreshadowing the change was sent *before* Dr. Reed left the United States. It is also a significant fact, that on the dissolution of the Commission Mr. Grunsky, who was "especially" the object of Dr. Reed's attack, was provided with a better appointment than his colleagues; an action on the President's part which is not indicative of disapproval.

Moreover, it must be borne in mind that this dissatisfaction of the authorities was not so much with the sanitary arrangements or want of them, as it was in the delay in matters relating to the Canal itself—"the inherent clumsiness," as Secretary Taft expresses it, "of the Commission as an executive body." For while the sanitary aspect is naturally the one that claims the attention of medical men in this country, to the exclusion of all else, yet to those intrusted with the management of affairs on the Isthmus, the principal object to be attained is the completion of the Canal. The situation in fact resembles the position of some of our generals in the Civil War. Their desire was to save and protect their men in every possible way. To this end they appointed a medical staff and a sanitary corps to whom they entrusted the details. This having been done, they turned their personal attention to what they were responsible for—the winning of the battle.

That the late Commission did not succeed was not entirely its own fault. With a board of seven members, and hampered by the circumlocution rendered necessary by the bill as passed by Congress, it was difficult, if not impossible, to act either quickly or compactly, and it is to remedy these defects of organization that the decided and drastic action of the President seems to have been taken. As is well known, it was his original intention to reduce the number of commissioners to three. Of these Mr. T. P. Shonts was to be Chairman and General Director, the entire sanitary arrangements were to be placed in the hands of Judge C. E. Magoon, the Governor of the Canal Zone, while the engineering matters were to be under the control of Engineer Wallace. This arrangement still holds good and is now in force, but as the Attorney-General of the United States has ruled that under the existing law the commission *must* be composed of seven members, four additional Commissioners have been appointed.

This, however, is rather in the nature of the classic little cottage girl of Wordsworth, with her immutable "We are seven." We seriously trust though, that two of them will not in the churchyard lie, nor that two will have gone to sea, but it is extremely unlikely that they will take their little porringers to be filled by government after Congress has consented and has had an opportunity to amend the bill. Meanwhile they will find more than enough to occupy their time, if they are to take up the numerous plans offered to the Commission in regard to the different levels of the Canal, varying, as they do, from what is known as the "sea level" to the "French plan," which was the one originally undertaken by de Lesseps.

It is, however, upon the sanitary management that the interest of the entire medical profession will center, and it is a most fortunate thing for them that its complete control has been, as we have said, placed in the hands of Judge Magoon. During the entire period of the Havana disinfection Governor Magoon was officially connected with the War Department, and was fully and most appreciatively cognizant of all its details. He is not only a trained lawyer and business man, but he is possessed of the broad judgment and judicial qualifications that will enable him to see things as they really are, and to realize what the necessities of arising complications may be. From his recent utterances on the subject, it is apparent that he has the greatest respect for the ability and achievements of Dr. Gorgas and his *confrères*, and that it is his full determination to do everything in his power to aid and abet them.

The congressional enactment in regard to the powers of the Commissioners is, of course, unwieldy and cumbersome in its present restrictions, but the profession can rest assured that any vexatious delays in the near future will be due to that fact, and to that alone. For we feel sure that in this case the lying down of the legal lion with the medical lamb will be characterized by "a long pull, a strong pull, and a pull *all-together*."

THE HAHNEMANN SESQUI-CENTENNIAL.

ON Tuesday evening, a week ago (April 11), the disciples of Hahnemann, the founder of homeopathy, celebrated the one hundred and fiftieth anniversary of the birth of the master, by a banquet at the Astor Hotel.

At the present time, the members of the regular profession of medicine can contemplate such a celebration with much more complacency than would have been possible even a quarter of a century ago. It is not that they are any the less convinced of the fact that certain of the fundamental principles of homeopathy are surely false, because of their incompleteness, but that they have come to realize that physicians of all schools are drawing together in matters apart from pharmacotherapy and that drugs, after all, represent only a comparatively small portion of the therapeutic armamentarium of the physician wise in this generation.

There can be little doubt that Hahnemann, in spite of errors in his system of therapeutics, contributed not a little to this consummation so devoutly to be wished, that has come in our day of less dependence on drugs and more trust in nature's resources and more faith in the remedial measures that enable nature to resume her sway even amid the diseased processes in the body. When Hahnemann began his work, a large part of the medical profession, including even some of its leaders, was prescribing mixtures containing many and varied ingredients, of which the practitioners of the time knew very little, for patients suffering from diseases of which, if possible, they knew less than the remedies they were employing. As yet the great developments in modern physical diagnosis, in pathology and in bacteriology were only in their infancy. The one aim of the physician seemed to be to use remedial measures that would have a very palpable effect upon the patient. Whether that effect was for good or evil seemed to be very little considered. Bleeding, purging and the use of strong depressants was the order of the day.

The first thing that Hahnemann's system did, and the result was quite unintentional on his part, was to make it very clear to the medical world that for most diseases what might well be called expectant treatment, served quite as well as regards saving of life, and in addition, saved the patient the intense annoyance of the more heroic remedial measures that were in vogue. No wonder there grew up in the minds of the thinking men of that generation outside of medicine, the impression so commonly voiced by believers in homeopathy at the present time, that at least if the new system of therapeutics did no good, it did little harm. The first principle of all remedy giving has been and must be non nocere—to do no harm. It was the fact that his minute dilutions accomplished this primal purpose much more than his introduction of supposed new principles of therapeutics that gave Hahnemann his success and eventually enabled him to maintain himself in spite of opposition from the regular profession even to the extent of founding a new school of medicine.

Many of the most enthusiastic of his disciples do not now accept in its entirety his principle "like cures like." For a very long time it has been true that none except the most inconsequentially ardent of his disciples have believed in the principle of dilution and high potency in its entirety. At the present time, however, there are some very striking phenomena in the developing science of physical chemistry which show that Hahnemann's high-dilution theories, while purely dogmatic and unsupported, contained some very interesting anticipations of later-day chemistry. Perhaps the most suggestive observation among recent chemical discoveries is the fact that in very dilute solution such substances as platinum and silver and other metals may acquire physicochemical properties immensely more powerful than any mere chemical affinities. The colloidal solutions of the metals, the principle of dissociation in solutions, and the so-called metallic ferments with their wonderful properties are only so many examples of how much science may develop along lines where such development is least expected.

There are those who see in Hahnemann's declaration that all diseases were due to the itch mite, an anticipation of the whole doctrine of modern bacteriology. To the unsympathetic outsider this looks like stretching a point very far in order to do honor to the master, especially when one recalls the analogous views of Charaka, of Hippocrates, even of Aristotle. Hahnemann, however, does not need any such far-fetched reasons for doing him honor. He undoubtedly accomplished a good work, though many of the methods employed were as mistaken as those of the regular school of medicine, whose tenets he was undermining.

There seems no doubt, however, that his modern disciples might realize the incompleteness of the principles underlying his system and now that in many points there have come radical departures from his doctrine, might properly disarm

the supposed exclusiveness of therapeutic principle which characterizes them. In the field of surgery, of hygiene and sanitation, of hospital care, and of the use of the various physical therapeutic agents, the modern up-to-date homeopathist is following the path made clear by his brother of the regular school. Why should there not be an opportunity for a gradual drawing together in the one department of pharmacotherapy where both sides are weakest and where the characteristic feature of medical teaching has always been a little reminiscent of Josh Billings' expression that "it is not the ignorance of men that made them so ridiculous as the knowing so many things that ain't so."

ECHOES AND NEWS.

NEW YORK.

The Meningitis Situation.—The deaths in the city from cerebrospinal meningitis during the week ending with Saturday, April 15, numbered 117, as against 110 of the preceding week. This increase, however, does not bring the rate up to the maximum which was reached two weeks ago with a record of 131 deaths, and it is hoped that the crisis of the situation is passed. The commission appointed by Dr. Darlington to combat the disease, held its weekly meeting on the evening of April 14; no definite conclusion was reached, but the commission is still engaged in gathering data.

Election of Officers.—At the annual meeting of the New York County Medical Association, held last Monday night, in the New York Academy of Medicine, the following officers were elected for the ensuing year: Francis J. Quinlan, M.D., president; Jno. A. Bodine, M.D., first vice-president; H. H. Seabrook, M.D., second vice-president; W. R. Stone, M.D., secretary; Chas. G. Child, Jr., M.D., corresponding secretary; Charles E. Denison, M.D., treasurer; H. A. Dodin, M.D., member of executive committee for three years; Wisner R. Townsend, M.D., member of nominating committee, fifth district branch.

Hospital Down the Bay.—On April 14, the New Jersey Dock and Bridge Building Company were awarded the contract for building an island southwest of Ellis Island, as a location for a Government hospital for contagious diseases. Piles will be driven, and an island ten acres in extent build of stone, sand and cement. The contract price for the work is $119,000. It is hoped that the hospital will be ready for use by January, 1906. It is to cost $250,000 and to accommodate cases of measles, diphtheria, scarlet fever and the minor contagious diseases generally. The steamship companies which bring the patients will defray the cost of caring for them.

Preventive Appendectomy.—The dangers, direct and indirect, attending the removal of the appendix except for good cause have been urged rather cogently by various physicians of late, but evidently have failed to impress Dr. Stella G. Root, of Stamford, Conn., who had her appendix removed at the Hahnemann Hospital a few days ago as a preliminary to going abroad for a prolonged course of study. She had never been afflicted or threatened, but she did not want to be, and took this means to insure freedom from the possibility of an attack while abroad. Dr. Whitney, of the house staff, says that this is the only case on record where an operation has been performed for such a purpose, although interval operations are common enough.

Crippled Children's Driving Fund.—The Crippled Children's Driving Fund was incorporated in November, 1904. Active work is now beginning. The object of the society is to provide outdoor recreation for crippled children of the hospitals and tenements, from April to November. Stages will take them to Central Park, to recreation piers, over Brooklyn and Williamsburg bridges (children of the lower East Side), and it is hoped plans may be made to have some roof gardens opened exclusively for crippled children for a few hours each week. The cooperation of all visitors to the tenements is requested in order that, so far as possible, a complete census of the crippled children in New York may be secured. Names may be sent to Miss Edna G. Meeker, Superintendent, Crippled Children's Driving Fund, 105 East Twenty-second Street.

Hospital Appointments.—The following students at the College of Physicians and Surgeons have received hospital appointments during the past week: *New York* Hospital, N. S. Shenstone, G. F. Cottle, F. H. Bartlett, W. B. Mount. *J. Hood Wright*, First, F. D. Solley, R. Cordner. *Newark City*, J. J. Smith; alternates, S. W. Dodd, C. L. Allers. *Columbus*, E. P. Schaefer, J. D. Gaskins. *Paterson General*, O. R. Hagen. *St. Barnabas, Newark*, First, H. W. Wright, R. E. Black. *St. Joseph's, Paterson*, W. J. Tiffany, F. Y. Neer. *St. Luke's*, H. S. Holland, F. H. Hayes, M. B. Swift, A. L. Hutton. *Presbyterian*, First, J. J. Barrett, G. M. Smith, J. W. Jameson. *Roosevelt*, First, R. Dwight, C. W. Bartow, E. A. Park, M. E. Johnston, R. Townshend, R. M. Brown, E. M. Colie, Jr. *Sydenham*, A. H. Zeiler; alternates, Max Volk, Louis Cohen. *Hale Hospital, Haverhill, Mass.*, S. B. Smith.

Robin's Treatment of Meningitis.—Much interest is manifested in New York in the new method of treating meningitis used by Dr. Albert Robin, at the Hospital Beaujon, in Paris, although it is recognized both here and in Chicago that it is too early to make any authoritative statement in regard to it. Dr. Albert Robin's treatment consists in injections of metallic ferments, a "solution of one in ten thousand." Every day 20 c.cm. are injected into the muscular tissue of the hip or abdomen. In cases presenting very serious symptoms Dr. Robin obtained good results from intravenous injections of a solution containing one milligram of the metallic ferment per cubic centimeter. Silver and manganese are the metallic ferments which seem to give the most successful results. This medication is free from disadvantages. After a few injections the record of the patient's temperature shows a general lowering. Each injection is followed by a rise in temperature, more or less marked, followed in its turn by a decrease which brings the temperature below the initial figure.

New Home for Convalescents.—Announcement is made of the incorporation in New York of the Solomon and Betty Loeb Memorial Home for Convalescents. The foundation has been erected by the children of those in whose memory it is named, and a condition has been made that no discrimination on account of faith, nationality, or pecuniary circumstances shall affect the admission of applicants. It is hoped that the home may be made attractive to persons of moderate means who would be unable to pay the large sums demanded at regular hotels and boarding-houses, but would not be willing to accept benefits for which they were not allowed to pay according to their own abilities. Besides actual convalescents, it is also intended to receive those who are in poor physical condition from anemia or

similar troubles; but no attempt is to be made to cure either acute or chronic diseases. For these purposes, there has been given $750,000, of which $500,000 is to be set aside as a permanent income-producing fund. A farm of seventy acres has been purchased at East View, Westchester County, on the New York and Putnam Road, and the plans contemplate the erection of a number of detached cottages, which are to be as home-like as possible.

Meeting of the American Physical Education Association.—The meeting of the American Physical Education Association opened on April 17, at Teachers' College, with an address from Dr. Luther Halsey Gulick, director of physical training in the New York public schools, on "Rhythm and Education." He insisted on the importance of alternate periods of activity and rest in life. He pointed out that children's play follows the same periodicity—games being taken up and dropped at certain seasons—and believed many of the works of genius were produced under the same law. "Continuous work fatigues the brain cells, and periods of rest following those of intense activity is the scientific and most economical way," he said, "and if too long continued will pull genius down to mediocrity." The morning was devoted to a consideration of the usefulness of dancing in physical training of boys and girls. Miss Caroline Crawford, of Teachers' College, advocated letting little children dance in the gymnasium.

"Let them do the kind of dancing that they like best," said Miss Crawford, "and it will probably be found to be the kind that is performed to the accompaniment of Indian tunes. Let them do Indian war dances. Give the tots a chance to get their exercise in the way that they like best and it will be found to be the most beneficial to them."

In the afternoon Dr. George L. Meylan, Columbia's physical director, spoke about marks for proficiency in physical education. "Vitality is much more desirable than strength," said Dr. Meylan. "Vitality and endurance are correlated and endurance tests are the things that we are trying to make. No satisfactory vitality test has been found."

Prof. Frank Boaz, of Columbia University, spoke on "The Significance of Epochs in Growth and Development." He made a chart on the blackboard representing the results of many years' investigations. The chart showed at what age the average persons reached certain stages of development.

Forty-four and a half years was put down as the point at which the first approach of senility is noticed, though Prof. Boaz did not mean to exploit any Osler theory. The age varies greatly with different persons.

At the afternoon session the convention divided into two sections. That on Therapeutic Gymnastics devoted itself entirely to the use of gymnastics in the restoration of health. A committee to discuss the advisability of forming a permanent organization in connection with the American Association was appointed.

A paper by Dr. Compton Reilly, of Baltimore, on "Scoliosis," was illustrated by a girl, about sixteen years old, suffering from a bad case of spinal curvature. The method of treating the case by lying on the back and raising one leg high in the air was demonstrated. Other methods of alleviation were by series of exercises of the limbs while the patient was hanging by her hands from a horizontal bar.

It was announced that the National Anthropometric Association was going to get the measurements through the Y. M. C. A. branches, colleges and schools of America of 40,000 men and women, in order to determine the exact proportions of the national type. The measurements of women will be made at the Boston Normal Training School.

PHILADELPHIA.

Measles Develop on a Steamer.—The transatlantic liner, Friesland, which arrived from Liverpool, had on board several cases of measles. They were placed in a temporary hospital where they will be detained with their parents and friends. Several cases of trachoma were on board the same steamer; they will be returned to Liverpool.

A Commission to Investigate the Conditions of the Insane Asylums.—The Senate concurred in a joint resolution creating a commission to investigate the various charitable institutions maintained, wholly or in part, by State appropriations. The commission will make suggestions to correct abuses, carry out reforms and to make recommendation with respect to the management, improvement, enlargement and control of the institutions.

Pathological Society.—The regular meeting of this society was held April 13, when Drs. G. McConnell and J. T. Thornton read a paper on "Duodenal Ulcer Following Superficial Burns." Dr. W. G. Spiller read a paper on "The Findings in Four Cases of Anterior Poliomyelitis." Dr. M. H. Fussell then read a paper on "A Case of Thoracic Aneurism." Dr. G. C. Robinson read a paper on "The Etiological Significance of Typhoid Bacilli in the Lungs."

Poor Consumptives Must Pay.—During the course of a lecture at the Mercantile Hall, Dr. Lawrence Flick announced the new partial-pay policy of running the Free Hospital for Consumptives, at White Haven, which was decided upon at the last annual meeting of the society. The patients now at the hospital will, about June 1, when the new policy is to take effect, be placed upon the convalescent farm, where they can do some work which will contribute to their support. Until the capacity of the hospital is increased to 300 beds the cost of maintaining each patient will be from $6 to $7 per week.

Section on Medicine of the College of Physicians.—The section met April 10. The scientific program was opened by Dr. H. A. Hare, who presented a "Case of Paroxysmal Hematinuria." Dr. Steele reported a case which died of chronic interstitial nephritis; during life no pepsin or hydrochloric acid could be demonstrated in the contents of the stomach. The case was discussed by Dr. Francine and by Dr. Coplin. Dr. Francine then presented two cases of dexiocardia occurring in pulmonary tuberculosis. These cases were discussed by Drs. Sailer and Fussell. Dr. Sailer read a paper on carcinoma of the alimentary tract.

Enteric Fever and the Water Supply.—At the Franklin Institute, Kenneth Allen, superintendent of the Water Department of Atlantic City, read a paper entitled "Sanitary Protection of the Water Supply." Typhoid fever, he said, is the most serious results of impure water supply and therefore the life history of this organism and the mode of infection deserves the closest study. While the bacillus survives low temperatures for considerable time, yet no typhoid epidemic has been traced to the use of impure ice. In rivers, he said, the water bacteria tend to exterminate this organism, yet they are not always successful. Infections of small rapidly flowing streams are to be most feared. The remedy of unsanitary conditions lies in the prevention of pollution and the securing of pure supply or the purification of an inferior supply.

American Philosophical Society.—At the meeting of this society Prof. R. H. Chittenden, of Yale Uni-

versity, read a paper on amount of food assimilated. In a series of experiments he found that one-third or one-half of the amount of food taken ordinarily is sufficient to supply the needs of the economy. An excess is detrimental to the health and is responsible for gout, rheumatism and kindred diseases. Alcohol, when taken with proteids, prevents proper assimilation of the food. When taken alone it will take the place of proteids to a certain extent. Prof. Krämer in an article "The Oligodynamic Action of Copper on Some of the Intestinal Bacteria," said some of the bacteria, like the *Bacillus typhosus*, are destroyed if introduced into water which has been in contact with copper foil, or if the copper foil is put in water in which the bacteria are known to exist. This is the principle involved in the method of making water fit for drinking purposes with copper solutions. Dr. Harvey W. Wiley spoke on the subject of poisons in the food. He said some individuals are more susceptible to poisons than others, therefore, the object of the restrictive laws should be, to protect the weakest and not the strongest. The direct principles of legislation should prohibit the addition of any substance to food which is not necessary to their preparation.

Annual Meeting of the Pennsylvania Society for the Prevention of Tuberculosis.—The President, Dr. Howard S. Anders, expressed the disappointment of the society when they learned that the Governor failed to sign the appropriation bill for the consumptive camps. He recommended that marriage licenses be refused to individuals affected with tuberculosis; that systematic war be waged against the house-fly; that the habitual use of alcohol, even in moderate doses, be discouraged; that the use of the public drinking cup be discontinued; that the children of the work rooms and of the tenements be examined frequently for tuberculosis and guarded against this form of infection; that the modern method of preventing tuberculosis be taught in the public schools. The following officers were elected: President, Dr. Joseph Walsh; vice-presidents, Dr. M. P. Ravenel, Dr. Benjamin Lee, Talcott Williams, Dr. A. B. Craig, Dr. Howard S. Anders, Samuel Kastner, Dr. Samuel Dixon, Dr. Lawrence Flick, Samuel Scoville, Jr., Dr. Seneca Egbert; Secretary, Dr. Ward Brinton; Solicitor, James L. Stanton; Treasurer, the Commonwealth Title Insurance and Trust Company; Board of Directors, Drs. Flick, Norris, McCarthy, Anders, Pearson, J. L. Stanton, W. B. Stanton, Irvin, Roussel, Ravenel, Davidson, J. Solis-Cohen, Walsh, Brinton and Scoville, Jr.

American Anatomists at the Wistar Institute.—The ten leading anatomists who were made an advisory board to the Wistar Institute appointed a committee of five to cooperate with the Committee on Brain Investigation of the International Academies, a committee of three on comparative anatomy and embryology, and a committee of three on the relations of the Wistar Institute to the American Anatomists as individuals. This board advised that the principal object of the institute should be research, with a chair of investigation at from $3,000 to $5,000 and research assistants to divide their services between the museum proper and the anatomical assistance. The new combination looks to establish experts at stations throughout the world to collect and to preserve human and other brains, and human and other embryos, and material for the study of comparative anatomy and embryology. During the conference Dr. Gage said it was easy to cultivate a great willingness among distinguished men to assign their brains if assured that the brains would be of real service to science. He also said that the Cornell Brain Association made it a point never to insist upon their right to a bequest of a great man's brain where the family objected. In published reports of the investigations of the brains names were suppressed to avoid any distress to the children of the deceased. After a long time has elapsed it would make no difference if the names are revealed, for, he said, no one is now distressed by the discussion of the brain of Cuvier.

CHICAGO.

Training School to Enlarge.—The Lincoln Park Hospital and Training School for Nurses has acquired by purchase for $35,000 from John A. and Anna S. Raithel, the property at 500 and 502 La Salle Avenue.

Lecture for a Hospital.—Mr. John F. Bass will give an illustrated lecture on the Russo-Japanese War, April 25, for the benefit of the Chicago Union Hospital. The proceeds will go toward building a fireproof hospital to replace the one recently burned. Mr. Bass was one of the Chicago *Daily News* special correspondents in Manchuria.

First Aid Journal.—The initial number of a monthly magazine called *First Aid*, which is the official organ of the American White Cross First Aid Society has appeared, and contains articles by Dr. Nicholas Senn, Dr. Geo. W. Webster, and Mrs. John B. Murphy. The magazine is devoted, as its title implies, to spreading the knowledge of first aid to the injured.

Possible Expulsion of Dr. Stone.—Dr. Carl D. Stone, said to be convicted in 1903 of violating the postal law, will be given ten days' grace by the Committee on Ethics of the Chicago Medical Society. At the end of that time, if he cannot explain satisfactorily his connection with the Archer Chemical Company and the questionable circulars sent out by that concern, it is said he will be expelled from the society. Drs. Wm. H. Wilder, N. S. Davis, and I. N. Danforth, constitute the Committee on Ethics. The action regarding Dr. Stone was taken at a recent meeting of the council of the Chicago Medical Society.

Meeting of State Board of Health.—The State Board of Health at its quarterly meeting, recently held in this city, heard an exhaustive report on the sanitary condition of the penitentiary at Joliet by the secretary of the board, Dr. James A. Egan. The report indicated the need for increased facilities at the institution if the health of the 1,400 inmates is to be maintained unimpaired. The main defect of the present cell arrangement Dr. Egan found to be in the inadequate air space, and in the lack of light. No great increase in the death-rate had been demonstrated. Jacob Harmon, sanitary engineer; Prof. John H. Long, chemist, and Dr. Robert Zeit, bacteriologist, are engaged in preparing a supplementary report on the air conditions in the present cell houses.

Cerebrospinal Meningitis.—So far as can be learned, there have been two fatal cases of this disease in this city. One of the patients was a child, five and one-half years of age; the other nineteen years of age, who died at the Cook County Hospital. The latter was an Italian immigrant. He was kept in quarantine at New York several days, and upon his release started immediately for the West. While on the train the patient was attacked with excruciating pains in the head, which grew worse, and when he reached Chicago suffering was intense. He appealed to the Italian consul for aid, and was sent to the County Hospital in a police ambulance. He was placed in the contagious ward, and everything was done by the hospital physicians to save his life, but after twenty-three hours of suffering he died.

Care and Treatment of Epileptics.—A class of forty, under the direction of Professor Graham Taylor, of the Institute of Social Science and Art, recently visited the Cook County Infirmary at Dunning, and were conducted over the institution by Dr. V. H. Podstata, who gave a short talk on the care and treatment of epileptics. Among other things, he said that society is wholly responsible for the conditions which are the causes of epilepsy, and it is the duty of society at large to contribute to the care of these unfortunates, who are the victims of conditions created by it. More than 85 per cent. of epileptics are hereditary sufferers, and alcoholism of the parents is responsible for the great majority. It has been said that not less than one of every three children of alcoholic parents suffers from epilepsy. Colonization of sufferers is the only way in which epileptics properly can be cared for. He said in the County Institution they were thrown with the insane, a condition, he asserted, to be unfair to both classes of patients. The majority of physicians are willing to admit that purely medical or surgical treatment is of little or no value except in extremely isolated cases. More has been accomplished by a truly hygienic mode of living, strict regulations of the habits of life, and particularly by suitable, interesting employment and surroundings.

A Lesson in Milk Testing.—The records of the Department of Health of Chicago for the last five years, so far as they concern the crusade against the use of formalin in milk, appear to teach very clearly the important lesson, that under no possible condition is it justifiable to threaten the health of the public by tampering with food products. The Chicago *Evening Post*, in a recent editorial, has the following to say on this subject: "Formalin is not added to milk to make it more wholesome. Commercialism never takes wholesomeness into consideration. The chemical is a powerful antiseptic and preservative. Added to milk it retards the ordinary natural process of souring. Thus, in order to keep up the apparent commercial value of milk, dishonest dealers add a poison; they 'preserve' the outward physical characteristics of the milk, but destroy its wholesomeness." The statistics of the Department of Health leave no doubt that the use of formalin in this way is an agent that increases the rate of infant mortality. In 1900, when the crusade began, the death-rate of infants under five years of age in Chicago was 43.5 in every thousand. That year the number of samples of milk examined was 19,053, of which 293 were found to contain formalin. Last year the death-rate for the ages mentioned was 34.7; the number of milk samples analyzed was 25,243, of which only 25 contained formalin. That is, the increase in the number of milk samples examined was 32.48 per cent., and the decrease in the number of formalin samples discovered was 91.4 per cent.; the reduction in the infant mortality rate was one-fifth (20.2 per cent.) in 1904 from the rate in 1900. "Seldom do we find the efforts of public health officials so clearly supported by results as they have been in this crusade against commercially poisoned milk, with its great reduction in the reprehensible practice and its corresponding falling off in the infant death-rate. The department can be measurably encouraged not only to continue its vigilance in this direction, but to widen it until the sacrifice of health through selfish and dishonest commercialism shall be wholly prevented."

State of Chicago's Health.—The bulletin issued by Dr. Arthur R. Reynolds, Commissioner of Health in Chicago, shows a decrease of 25.3 per cent. in the death-rate of the last decade from that of the preceding one. Newsholme and other vital statisticians accept the mortality among the young as a "most reliable test of the sanitary condition and of the sanitary administration of a community." Studied from this point of view it is seen that nearly three-fourths of the total saving of human life during the last decade, as compared with the previous one, was the age-group whose mortality forms "a most reliable test" of the health conditions of a city. Study of the detailed tables in the report shows that the greatest reductions of mortality are among the diseases which sanitary administration and sanitary conditons have the greatest and most direct control, as smallpox, diphtheria, typhoid, etc. Finally, consumption itself—until within the last few years and until superseded by pneumonia—the cause of the greatest number of deaths, shows a decrease of 13.7 per cent. in the last decade, that is, from a rate of 17.6 per 10,000 of population to a rate of 15.2, and a constructive saving of 3,915 lives. Except cancer—the death rate of which has increased 22.8 per cent.—every one of the important causes of death which show an increase in the last decade, may be traced clearly to the malign influence of the "Demon of Influenza." Beginning in the winter of 1889-90 this disease, which formerly visited the country only at long intervals, has become domesticated with us, and there has been no year in the last fifteen when it has not been present in this city. Among other important causes of death which show decreases in the second decade are bronchitis, 41.3 per cent.; cerebral apoplexy, 23.4 per cent.; the nervous diseases, 45.8 per cent. With these decreases neither medical science nor sanitary administration can claim to have had much to do. They must be attributed to the general improvement of physique and increased vitality of the people of Chicago, due to saner modes of life, to better personal hygiene, to that popular education in sanitary matters which has made such vast strides in the last quarter of a century.

Association of American Medical Colleges.—The fifteenth annual meeting was held in Chicago, April 10. The association adopted a new constitution and by-laws, so that now the annual dues are raised to $25. The minimum entrance requirement was made a diploma from an accredited high school, normal school, or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study, embracing not less than two years of foreign languages, of which one must be Latin; two years of mathematics; two years of English; one year of history; two years of laboratory science, and six years of further credit in language, literature, history or science. The applicant is required to take an examination in prescribed subjects, or he must present certificates from reputable instructors recognized by the Superintendent of Public Instruction in the city or State in which the college is located, or by any State board of medical examiners duly authorized by law, which might be accepted in lieu of any part of this examination. Provision is made for a four-year course of study in four calendar years, each annual course to have been not less than thirty teaching weeks, including examinations, duration, and at least ten months intervening between the beginning of any course and the beginning of the preceding course. Credit may be given to the holder of a bachelor's degree for any work in the medical branches which he has successfully completed in his college course only so far as it is the full equivalent of corresponding work in the medical curriculum. The holder of such degree may also be given time

credits of not exceeding more than one year; provided he has had at least forty hours in physics, one hundred and forty-four hours in chemistry, twenty-four hours in osteology, two hundred and ninety-two hours in human or comparative anatomy, one hundred and twenty-four hours in histology, eighty-five hours in embryology, one hundred and forty-five hours in physiology, and forty-six hours in materia medica, provided that the applicant satisfies the professors of the Chairs in the medical school as to his proficiency in these first-year medical studies. Every student is obliged to attend eighty per cent. of the exercises in every annual course of study for which he seeks credit, and no credit shall be given unless he attains a grade of at least 70 per cent. or its equivalent in any other marking system. No student shall be graduated unless he attains a passing grade in each and all subjects of the required curriculum. Dr. Samuel C. James, of Kansas City, Mo., was elected president, Dr. Fred C. Zapffe, of Chicago, secretary-treasurer. The next meeting will be held in Pittsburg, in 1906.

GENERAL.

Meningitis in Connecticut.—On account of the development of a case of cerebrospinal meningitis in the Pomfret School for Boys, in Pomfret, Conn., school work has been suspended for at least a week, and nearly all the 115 students have been sent to their homes at the request of their parents.

Mr. Spreckels Must Pay the Doctor.—The Vienna papers announce that the suit, pending since last August, brought by Dr. Gans, of Carlsbad, against Rudolf Spreckels, for fees in connection with services rendered, when Mr. Spreckels was suffering from appendicitis, has been decided in favor of Dr. Gans.

Predetermination of Sex.—The question of the predetermination of sex came up for discussion at the Medical Congress at Wiesbaden, on April 17, and Dr. Weill asserted that diet greatly influenced the embryo. Experiments with animals showed that a predominance of carbonaceous foods tends to the development of males and of albuminous foods to females.

Hospital Gets $5,000.—The executors of the estate of Adrian Iselin have notified the treasurer of the New Rochelle Hospital that they will soon turn over to that institution $5,000. The gift is the first that has been announced since the banker's death. Mr. Iselin set aside $300,000 in his will for charitable bequests, and indicated privately to the executors the institutions to be benefited.

Cats Have Diphtheria.—The Orange (N. J.) Board of Health is preparing to investigate the cats in the city with a view to preventing the spread of diphtheria. A number of cats are known to have the disease. Many of these animals are the pets of children. Dr. G. Herbert Richards, president of the Board of Health, advises all householders owning cats that have sore throats or apparently have difficulty in breathing to consult a physician at once.

Meeting of American Antituberculosis League.—The American Antituberculosis League met in Atlanta, Ga., on April 17, and was welcomed by Dr. George Brown of that city, president of the league. The convention assembled in the Hall of Representatives at the State Capitol, with an attendance of about 490 physicians. Delegates came from nearly every part of the United States, east of the Rocky Mountains, and there are several prominent representatives from European centers.

Labrador Medical Mission.—When Dr. Wilfred T. Grenfell, the English physician, who is known as the "missionary of the deep-sea fishermen," goes back to Labrador next month, he will take with him on the yacht Strathcona two young women who have done settlement work for several years, about $60,000 contributed by the larger cities, and an encouraging contribution from Andrew Carnegie for the establishment of loan libraries along the coast of Labrador. The young women who have volunteered to go to this remote region are Miss Clara Koonz and Miss Isabel Harris. They not only volunteered their services to the Labrador mission, but propose to bear the expenses themselves. Miss Harris has for years been giving her time to settlement work exclusively, and is now connected with the Protestant Episcopal Church of the Land and Sea, Henry and Market streets, New York. Miss Koonz is connected with the Tenement House Commission, and is regarded as an expert in the industrial system. Both are now preparing for the long journey to Labrador, and before going propose to organize a permanent Ladies' Auxiliary in this city which will aid the mission from time to time. At a dinner in honor of Dr. Grenfell at the home of Stephen Baker, 8 East Seventy-eighth Street, New York, a group of well-known ministers and educators, headed by the Rev. Van Dyke, formed a permanent organization to aid Dr. Grenfell's mission.

Tuberculosis in Trains.—Surgeon-General Wyman, of the United States Marine Hospital Service, has called a meeting of the executive officers of the state boards of health, for May 15, in connection with the meeting of the National Association for the Study and Prevention of Tuberculosis. He has received numerous letters from health officers on this subject, especially on that branch of it which relates to the spread of the disease by travelers on the various railroads. Dr. S. J. Crumbine, secretary of the Kansas State Board of Health, thus writes: "The geographical position of this State is such, lying immediately east of the health resorts of the Rocky Mountains, that it could probably be asserted that there is scarcely a transcontinental train going West the year round that does not carry its one or more passengers afflicted with tuberculosis, seeking the life-giving and healthful resorts of Colorado, New Mexico and Arizona. With little or no convenience for the proper disposal of the expectoration of these people, it must be self-evident that these cars are in a chronic state of infection. Time and again I have personally observed a consumptive in a day coach. These people being of low vitality and afraid of draughts and cool air while traveling require that the coaches be closed, which adds to the danger of infection to their fellow-pasengers." It is considered by the scientists who expect to be in attendance as especially fortunate that while the meeting is in progress they will have unusual facilities for studying the latest improvements in the ventilation and sanitation of railway passenger cars. For simultaneous with the meetings of the health specialists will be the meeting of the International Railway Congress, with its great exhibition of cars and railway appliances. Numerous tests will be made under the direction of health officers from different parts of the country, to demonstrate how quickly and how completely the air in passenger coaches can be changed, it being the already expressed opinion of scientific men that public health demands an entire change of air at least once in every six minutes.

The National Antituberculosis Meeting.—The plans for the annual meeting of the National Association for the Study and Prevention of Tuberculosis to be held in Washington, May 18 and 19, under the presidency of Dr. Edward L. Trudeau, are now rapidly ap-

proaching completion. At the general meeting of the association to be held on the morning of May 18, addresses will be made by the president and by the two vice-presidents, Drs. William Osler, of Baltimore, and Hermann M. Biggs, of New York. At a general meeting to be held on the evening of May 18, an address will be made by Mr. Talcott Williams, of Philadelphia, to be followed by the business meeting of the association. The afternoon of May 18, and the morning and afternoon of May 19, will be given up to meetings of the sections, of which there are three. The papers already announced promise an interesting and valuable series of meetings. The Sociological Section in addition to the report by the chairman will offer papers on "A Working Program for Associations for the Prevention of Tuberculosis, National, State and Local," by Edward E. Devine, of New York; "Progress of the Sanatorium Movement in America," by William H. Baldwin, of Washington, and "Infection in Transportation," by Dr. H. M. Bracken, of St. Paul. The climatological and clinical program in addition to the address of the chairman, includes a number of reports and papers of particular significance. The report of the committee on clinical nomenclature under the chairmanship of Dr. Vincent Y. Bowditch, of Boston, will be discussed by Drs. Welsh, Trudeau, Stengel and Vaughan. From a practical point of view there is probably no subject upon which agreement is more necessary than this and an authoritative pronouncement by a body of the authority of the national association is greatly to be wished. The report of the committee on early diagnosis, under the chairmanship of Dr. Arnold C. Klebs, of Chicago, will be discussed by Drs. Osler, Janeway, Knight and Babcock. The rôle of climate in the management of tuberculosis is also the subject of a committee report by Dr. C. L. Minor, of Asheville, the chairman. A symposium on the sanatorium treatment of consumption also promises matter of interest. Other papers are expected by Drs. C. L. Greene, of St. Paul; William S. Halstead, of Baltimore; C. F. Gardner, of Colorado Springs; Edward O. Otis, of Boston; S. A. Knopf, of New York; J. A. Wilder, of Denver; H. B. Loomis, of New York, and William Porter, of St. Louis. The pathological and bacteriological section will, naturally, be strictly technical in scope. An introductory address will be made by Dr. William H. Welch on "Channels of Infection in Tuberculosis," which will be of general interest and value. The final program of the meeting will be complete in the course of a week. Invitations have been sent to the various antituberculosis organizations in the United States to be represented by delegates at this meeting and a large attendance is expected. The printed papers resulting from a gathering of such authority as this should afford invaluable material in the campaign of education which is now being pushed thoroughout the country.

Fleas and the Plague.—That a commission of eminent scientific men, nominated by the Imperial Government and the greatest learned societies and institutions, should be appointed to sit in judgments on the flea seems at a first glance merely a piece of Gilbertian humor. Yet the trial of the flea, and his crimes in connection with the spread of bubonic plague in India, will be one of the chief tasks of the advisory committee of scientists just nominated by the English Government, the labors of which will probably extend over two or three years. Dr. Martin has gone to India to arrange for investigations on the spot and the committee will deal with the results in England. A quarter of a million people died of plague in India in January and February this year, and the disease, which in different parts of the world becomes most violent at different seasons, is most active in India in March. The total plague deaths in India for the epidemic years beginning with 1896 were as follows:

1896 (last half)	2,288
1897	55,548
1898	117,733
1899	135,996
1900	92,106
1901 (first half)	121,730

Thus the deaths in two months of 1905 have been nearly double those of the worst year of the epidemic.

It has long been known that the rat has a close connection with bubonic plague. He shares with man the honor of providing a favored nesting place for the bacillus of the disease. Often a terrible outbreak among humankind has been heralded by a previous epidemic among rats. It was easy to see how rats might be first affected. Disease-producing matter might well get at them in drains and underground holes, and so produce an outbreak while men remained safe. But if so, how did the bacillus get from the rat to the human population? A number of scientific investigators have lately come to the conclusion that the intermediary is the common flea. Dr. H. N. Choksy, who is in charge of the Bombay Plague Hospital, said in a lecture a few weeks ago, that the annual recurrence of epidemics has rendered the people callous and indifferent. The spread of the disease is due to the neglect of sanitary precautions by the ignorant poor. The prompt and early recognition of the plague is of vital importance to the patient and his family. It usually enters the system through the apparently unbroken skin, but the mucosa of the mouth, nose and throat may sometimes act as channels of infection. It is, therefore, important to cover all abrasions of the skin during epidemics. Since compulsory sanitary measures have been abandoned no voluntary effort at self-preservation is made by the people who have become fatalists. The experience of seven previous epidemics of plague has been of service, but as yet no effective means of stamping out the disease have been adopted. Plague is an infectious and contagious fever of limited duration, characterized by the appearance of enlarged and swollen glands (buboes) in various parts of the body and accompanied by grave disturbance of the nervous and circulatory system, its greatest fatality is during the first week. Usually the disease is contagious only, but under certain conditions it is infectious—pneumonic plague is the most deadly and is highly infectious. The diagnosis of the disease is easy. The sudden developing of high fever, tender, enlarged or swollen glands, faltering speech and slight mental disturbance occurring simultaneously in an otherwise healthy person point to the plague. It is a fallacy to use germicidal remedies in plague merely because it is a germ disease, they have all proved inefficient. Light and air are the plague's greatest enemy.

Two serums are potent if applied early in the disease, the Lustig's serum which was abandoned in India before conclusive results had been reached, and the Yersin-Roux's serum which is prepared at the Pasteur Institute of Paris. Dr. Choksy is convinced that either of these, if properly used, will effect a cure in sixty per cent. of non-septicemic cases.

OBITUARY.

Dr. WILLIAM D. SMALL, Supreme High Priest of the National Lodge, Knights of the Golden Eagle, died at his home, at Lewiston, Me., April 13, aged forty-one

years. He was formerly president of the Maine Academy of Medicine and Science.

Dr. N. NEWLIN STOKES, of Moorestown, N. J., died last Wednesday, aged seventy-two years. Dr. Stokes was graduated from the Jefferson Medical College, this city, in 1854. He took an active interest in the affairs of Moorestown. For many years he was a member of the Board of Managers of the State Asylum for the Insane at Trenton, and was also an active member of the Burlington County Medical Society. He was president of the Moorestown Water Company and a director of the Moorestown National Bank and Burlington County Safe Deposit and Trust Company.

SOCIETY PROCEEDINGS.

NEW YORK PATHOLOGICAL SOCIETY.

Regular Meeting, held January 11, 1905.

The President, Otto H. Schultze, in the Chair.

A Simple Method of Filtering Agar.—Dr. J. Finley Bell demonstrated a method for the rapid filtration of large or small quantities of agar. The apparatus was exceedingly simple, consisting of a cylindrical glass bulb with perforations over which was slipped a Schleicher and Schüll thimble of filter paper of the type used in the Soxhlet fat extraction apparatus. The whole was covered with a cylindrical glass protector or slightly larger than the bulb. The open end of the protector was covered with several layers of gauze and some absorbent cotton to strain out the coarse particles. The other end was attached to a piece of heavy rubber tubing and connected to a filter flask. A vacuum was produced in this flask by means of an ordinary Bunsen filter pump. If the filtering apparatus is then moistened with hot water and dropped into the vessel containing the hot agar, and the pump started, filtration will take place rapidly, about a liter being filtered in three or four minutes. The advantage of the apparatus consists in the fact that no cooling takes place until the agar has passed through the filter, whereas with the ordinary method of filtering agar it is difficult to prevent the agar from thickening or becoming solid in the filter. The reaction can finally be very easily adjusted in the hot agar after filtering.

Cyst of the Kidney.—Dr. Richard Weil presented a specimen of a cyst of the kidney. This was originally described as "malignant cyst of the kidney" by Strübing. It is actually an example of a rare, yet important type of the adrenal tumors of the kidney. The specimen was removed at operation by Dr. Kämmerer, of the German Hospital. The patient had previously been exhibited at many societies, and, although the cystocoscopic findings pointed indubitably to the presence of a renal disease, the exact pathological condition was never diagnosed. The same failure marked all the other cases recorded in the literature, in which the clinical diagnosis ranged from echinococcus cyst of the kidney to cyst of the ovary. Yet, as Strübing says, there are certain fairly characteristic symptoms which should really serve to differentiate it. Pathologically, it has been exactly duplicated by seven other undoubted cases in the literature; yet there are numerous other descriptions of renal cystic tumors, both in the older and in the more recent literature, which most probably belong in the same category, although the genesis of the cyst from an adrenal tumor was not identified. And that it could easily escape such identification was illustrated by Dr. Weil from the specimen in hand. It presented a large monolocular cyst, partially subdivided by fibrous septa. Roughly, it had the shape of the kidney. The wall was formed by a dense white tissue of varying thickness. The content was a thick, dark brown, grumous fluid, which contained leucocytes, red cells, epithelia, blood pigment, and cholesterin. Closer examination revealed the presence of two inconspicuous strands of a different tissue, one of which lay in the capsule, the other in one of the septa. Both of these strands were inclosed in a distinct fibrous capsule. Their tissue was firm; their color, whitish yellow. On microscopical examination they were found to be adrenal epitheliomata, presenting the characters of this tissue as it appears after it has undergone malignant degeneration. In some places it was with difficulty distinguishable from cancer; in others, it was distinctly of the structure of the adrenals. The wall of the cyst itself presented the remains of the kidney—glomeruli and tubules imbedded in a dense mass of connective tissue. Certain details of the clinical history were adduced by Dr. Weil as of interest, not only for themselves, but as throwing light on the growth and development of the tumor. The patient was fifty-six years of age. Up to the age of sixteen he was perfectly healthy. At that time he passed bloody urine almost constantly for two weeks. He had no pain and no other evidence of disease. From that time until 1899, a period of thirty-five years, he was in every respect perfectly well. In 1899, at the age of fifty-one years, he again had an attack of hematuria which persisted for several weeks, and left him quite weak and anemic. Since then he had had recurrences every year. He entered the German Hospital in June, 1904. He was markedly anemic, blood count less than 3,000,000; hemoglobin about 40 per cent.; and he looked cachectic. His abdomen was markedly distended by the cystic fluctuating tumor. His urine contained blood, which cystoscopic examination showed to flow from the left ureter. Puncture of the cyst yielded a bloody fluid. Since the removal of the tumor he has steadily gained flesh and strength and the anemia has disappeared. The remarkable facts are, the existence of the tumor for a period of forty years; its cystic character; its non-malignancy, except as a cause of anemia. The other cases recorded in the literature were exactly similar to this in the pathological findings. Clinically, they differed chiefly in the presence or absence of blood in the urine, depending upon the communication of the tumor sac with the pelvis of the kidney. In those cases in which there was no hematuria, puncture of the kidney cyst always yielded a fluid of the same character, containing blood pigment and cholesterin.

Dr. F. C. Wood, in the discussion, said that this very interesting cyst of the kidney reminded him of a case he had seen six or seven years ago, which corresponded to Dr. Weil's description of the case of hemorrhage into a suprarenal tumor, with the formation of a large cyst. The cyst he had seen was about the size of a child's head, lined on its inner surface with shaggy clots and a few projections containing suprarenal tissue but no smooth walls. It was, therefore, of a slightly different type, probably hemorrhagic cyst with softening of tumor tissue.

Dr. Weil said they were clinically of some importance. All described cases had been given the wrong diagnosis. Many had been considered echinococcus cases, others as cases of cyst of the ovary. This tumor simply produced pressure symptoms; the content was invariably bloody with cholesterin from

breaking down of the cells. That gave one a hold on the diagnosis.

A Case of Tricuspid and Mitral Stenosis.—Dr. Bond Stow presented a specimen showing tricuspid and mitral stenosis, together with the lungs showing very extensive hemorrhagic infarcts. He said that since one seldom saw a marked case of tricuspid stenosis with such extensive sequelæ throughout the lungs, he took pleasure in presenting to the Society these specimens. He afforded a view of the heart from the right auricle looking toward the right ventricle, demonstrating the tricuspid valve with its three cusps joined together for a distance of 2.5 cm. from the base of the valve to its closing margin. The opening through the tricuspid valve measured about 1.5 cm. in diameter. The right ventricle measured at the apex 4 mm. and at the base of the tricuspid valve, 1.5 cm. The right auricle was very extensively dilated and its walls averaged about 3 mm. On the right auricular appendix were several thrombi, one being about the size of a hickory nut. Looking from the left ventricle through the mitral valve into the left auricle, Dr. Stow demonstrated a mitral stenosis that scarcely admitted the tip of the smallest finger. Along the base of the anterior flap of this valve was a firm, stony hard, extensive, calcareous deposit in the form of a ridge fully 2.5 to 3 cm. in length. The left ventricle did not appear to be either hypertrophied nor dilated. The left auricle was much dilated and its walls measured about 3 mm. in thickness. The left auricular appendix was filled with thrombi. At the apex of the left lung was an old infarct which had partially undergone necrosis and was more or less cavernous and filled with a foul smelling, purulent detritus. There had been firm pleuritic adhesions over this infarct. In the right lung, along the anterior border of its upper lobe, was a large recently formed hemorrhagic infarct. The entire middle lobe was one hemorrhagic infarct. About four-fifths of the lower lobe likewise was one large, apparently recently formed infarct. There had been complete thrombosis of the external jugular on the left side and also a canalized thrombus was found in the superior vena cava. The right kidney also showed innumerable hemorrhagic infarcts. All of these the speaker believed were due, not to embolism, but to autochthonous thrombosis, owing to the favorable circulatory conditions brought about by the tricuspid stenosis, all thrombi found in the blood vessels being firmly adherent to their walls. The liver and other internal organs showed the ordinary appearances of cyanotic induration. Dr. Stow also demonstated a specimen from his recent post-mortem work, showing the anomaly of four cusps to the pulmonary valve, which condition had had no effect upon the welfare of the patient and had proven a mere post-mortem disclosure.

Embolism with Thrombosis of the Left Middle Cerebral Artery.—Dr. M. G. Schlapp presented a specimen showing embolism with following thrombosis of the left middle cerebral artery after ligation of the common carotid. Dr. Schlapp said that he had Dr. James Johnston to thank for this specimen. The patient in question was a man, forty-eight years old. Three years previous to his admission into the hospital, an epithelioma began to develop on the lower lip. Some time after, the submaxillary glands and the surrounding areolar tissue became involved, so that when he was seen by the surgeon the lower jaw and submaxillary tissue were diffusely invaded, so much so that the ligation of the common carotid was advised in order to check the growth. This was done. The carotid was ligated about two inches below the point where the common divides into the external and internal carotids. Thirty-six hours after the ligation the man suddenly became paralyzed on the right side (hemiplegia) and lost consciousness. Twenty-two hours after the onset of the hemiplegia, exitus lethalis took place. At the autopsy the following condition was found. The common carotid was opened below and above the ligature to the point where it divides into the external and internal carotids. It was found that a thrombus completely filled the common carotid from the ligature up to the division of the vessels and that it partly extended into the internal carotid for about 2 cm. Furthermore, it was seen that the thrombus did not completely fill up the internal carotid, but that an open space was left extending from the external carotid (which contained no thrombus) into the internal carotid. As was stated above, the thrombus extended about 2 cm. into the internal carotid from the common, and above this the internal carotid was clear up to the point where it passed into the middle cerebral artery. The latter was completely thrombosed. The upper end of the thrombus which protruded into the internal carotid, was torn and irregular. The smooth dome-shaped point which is invariably found at the end of a thrombus in a large blood vessel was missing. The explanation of the case was as follows: After the common carotid was ligated, a thrombus formed above the ligature, growing to the point where the common divides into the external and internal carotids. Here it grew some distance, but not into the external carotid because this vessel was filled with fresh flowing blood coming through collaterals from the opposite external carotid and flowing back into the internal carotid. This stream of blood from the external carotid into the internal carotid washed off the end of the thrombus extending into the internal from the common carotid, by which it was washed up into the middle cerebral artery closing up this artery and causing sudden hemiplegia and unconsciousness and later death. Encephalomalacia was distinctly seen in the area supplied by the middle cerebral artery. Dr. Schlapp wished to show this case to point out the danger in ligating the common carotid without ligating at the same time the external carotid.

Variations in Virulence and on Spontaneous Agglutination.—Dr. Edna Steinhardt read a paper on the above subject. The variations in virulence studied were those obtained by passing bacteria through bactericidal sera, following the methods of Ainley-Walker (*British Medical Journal*, 1902, and *Centralblatt für Bakteriologie*, 1 Abt. Orig. Bd. xxxiiii, 1903). The effect on the toxin production was also noted by growing the organisms in antitoxin. The experiments fell under three heads: (1) Effect on the toxin production of diphtheria bacilli by growth in antitoxin. (2) Effect upon the virulence of dysentery bacilli by growth in inactive horse serum, normal and immune. (3) Effect upon typhoid bacilli of repeated passages through bactericidal horse serum.

1. In the first experiments two varieties of diphtheria bacilli were grown for fifteen generations in diphtheria antitoxin, controls being kept in broth. They were then tested for toxin production, and in both cases the serum-grown strains produced less toxin than the controls. From these experiments it can only be stated that there was no specific increase

in toxin production caused by growth in antitoxin. The antitoxin in which the bacilli had been grown lost markedly in protective value due to direct neutralization by the toxin produced.

2. Dysentery bacilli of the mannite-fermenting type were grown in inactive, immune and normal horse sera. Two dilutions of each were used, strong and weak, as different results had been obtained by other workers with different dilutions, thus suggesting the possibility of over stimulation of the bacilli, causing decrease instead of increase in virulence. The cultures were grown for five weeks and then tested. It was found that all the strains had lost in virulence except that grown in normal weak serum; this had retained its virulence. To control these results a second series were grown for twelve generations in immune serum, strong and weak dilutions; that grown in strong lost markedly in virulence, about one-half; while that in weak retained its virulence.

3. Typhoid bacilli were passed through lytic serum 43 times and then tested. They had no increased serum-resistance in vitro, but had doubled in virulence. To control these results, from the original stock a culture was again passed through lytic serum ten times. In this instance there was greatly increased serum-resistance in vitro and the virulence was sevenfold. The serum-resistance in vitro was found by reactivating experiments to be due to increased resistance to immune body and not to resistance to complement, as found by Erich Cohn (*Zeitschrift für Hygiene*, Bd. xlv). Two other series were done from the same stock culture, and in exactly the same manner; one series five times, and one ten. In neither instance was there increased serum-resistance in vitro; the virulence was not tested. Thus in four parallel experiments, serum-resistance was obtained only once, and virulence was increased in much greater degree in one case than in the other.

From the results obtained in these experiments, the following conclusions may be drawn: (1) If there be a specific reaction between the receptors of the bacillus and the amboceptors of the serum, a certain proportion would be necessary to cause the overproduction of the bacillary receptors, as too great a number of amboceptors might overwhelm the bacillus, thus causing loss of virulence. This may be the reason for the irregular results obtained, or these results may be due to a non-specific action of the serum which, up to the present, is not understood. (2) In four series of passages of typhoid bacilli through bactericidal horse serum, under the same conditions, uniform results were not obtained. A definite reaction cannot in any given case be predicted. In some instances the bacilli surviving after the action of the lytic serum are the more resistant ones. The negative results may be due to the fact that in some instances the bacilli may possibly be protected from the serum mechanically, by being in the center of an agglutinated mass, or it may be that the bacillus must be in a certain condition to react, as some animals of the same species are more easily immunized than others. Spontaneous agglutination has been noted a number of times in serum-grown organisms by other workers. In these experiments, it occurred in the series passed forty-three times through bactericidal serum, after the twentieth passage. Over twenty generations on agar retained this characteristic. Returning to the stock typhoid culture, which grew occasionally with a slight pellicle, it was found possible by repeated plating to separate from it two variations, one giving a uniform cloudiness, the other agglutinating spontaneously in broth. This spontaneous agglutination is not an agglutination in the specific sense of the term, as from an agglutinating typhoid serum the agglutinators absorbed the same number of specific agglutinins as the non-agglutinating stock culture. The spontaneous agglutination continued through a number of generations, but by subculturing from a shaken broth culture, in a very few generations, this variation grew in broth with the original uniform cloudiness. Further work was done on two unidentified specimens isolated by Dr. Goodwin, one from water, the other from the intestinal tract. Both these organisms agglutinated spontaneously when transferred from agar into broth. In broth they produced cloudiness and formed a pellicle. Here it was also possible to separate variations, one giving only pellicle, the other, clouded broth with very slight pellicle production.

These results suggest that in cultures in which spontaneous agglutination occurs two variations exist in the original culture: one tending to grow in clumps, the other diffusely, and that under certain conditions the one type predominates, under other conditions the other type.

Dr. C. W. Field, in the discussion, said that the point of spontaneous agglutination was very interesting, and might throw light on the meaning of the reaction of agglutination. Dr. Steinhardt had said in her paper that it was not specific agglutination, but under the microscope it was practically impossible, so far as he had seen her preparations, to tell the difference between these and organisms agglutinated by specific serum. They had the same appearance, the same large clumps, and clearness of the field, that are found in sera of high specificity, and they were intensely interesting from that standpoint. The presence or absence of agglutination might not be an entirely specific reaction of the serum on the organism itself, but might be due to variations in the ability of the organisms to absorb certain constituents from the media.

Dr. E. Libman said that from the few observations he had made regarding spontaneous agglutination he considered also that it could at times be found apart from any action of serum. He had experimented with a paracolon culture—Dr. Cushing's bacillus. In that culture, after it had been grown for several months in ordinary bouillon, spontaneous agglutination occurred regularly after each transplantation. Jaeger in his agglutination work could not use some cultures because of spontaneous agglutination in salt solution. Dr. Libman thought pellicle formation depended to a great extent on the presence or absence of a carbohydrate content from which the organisms could derive oxygen. An organism which would grow with marked pellicle formation without sugar would often grow without or with a slight one if a carbohydrate were present which it could use. From the experience of the speaker he would not feel justified in saying that a distinct relationship existed between pellicle formation and spontaneous agglutination.

Dr. Steinhardt said that she thought that if Dr. Libman had shaken his broth culture of the paracolon bacillus, had then plated it, and had picked out the translucen thin colonies, repeating this several times, he would have gotten a non-clumping culture again from his spontaneous agglutinator. She had done so and had obtained a non-clumping culture. As

to culture media, the same broth was used in both cases. By separation one variation would produce pellicle and the other not. This was not due to a difference in sugar content because exactly the same medium was used.

Dr. Libman said he had plated the paracolon bacillus out a great many times, had tested many colonies, and had got spontaneous agglutination in bouillon subcultures regularly. He was very anxious to get it to grow diffusely but could not succeed.

Dr. Field said it was not due to serum present. In one case it was not due to serum especially as the serum did not come in contact with the organism.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held January 7, 1905.

The President, Augustus Knight, M.D., in the Chair.

Radiotherapy in Surgery, a Plea for Pre-operative Radiotherapy.—This was the paper of the evening read by Dr. William J. Morton.

Forms of Radiation.—Dr. Morton said that the recent development in the study of the radiation has worked a revolution, not only with regard to radio-activity but also with regard to many fundamental problems in physics. The atom has come now to be considered no longer as the smallest portion of matter, but is itself composed of smaller particles which are probably negative units of electricity. These corpuscles of which matter is composed, constitute the alpha rays and also the beta rays, while the X-rays and the gamma rays are more properly vibratory manifestations in the ether, such as the rays of light. The corpuscular rays penetrate material objects somewhat as fine particles run through a sieve. The other rays, however, have their penetrative power from their vibratory quality.

Pathological Effects.—The pathological effects that may be produced by radiations are due to the fact that in the skin there is a conversion of their energy into heat and other irritative forms of energy which if too great may easily produce burns. These pathological effects are seen most clearly in the walls of the blood vessels, which become thickened, and by so doing, lessen the nutrition of the part and consequently make it more liable to injury on subsequent occasions. It is clear, however, that the connective tissue suffers most of all the tissue types and it is this that is most readily destroyed.

Development of Technic.—There is a disposition on the part of experts in radiotherapy to use less intensity of the X-ray than at first. There seems to have been at first a general impression that a certain amount of cauterization was necessary in order to secure the full effect of the rays. As the result, severe dermatitis was often allowed to develop in the course of treatment. Now a mild dermatitis is considered the absolute limit of safety. When the X-rays were first employed, it was considered that they should be used for a long time and that indeed the longer they were used without absolute direct injury, the more absolutely curative was their effect likely to be. It has now become practically the rule to employ the X-rays for about six weeks and then wait for a time in order to observe results. It is perfectly possible to carry on treatment with the X-rays, that seems to be beneficial for a time, to a harmful extent. Any one with considerable experience in the treatment of malignant growth by means of the X-rays has seen cases in which after the cure of epitheliomata the scar tissue that resulted has broken down, making the condition worse than before with a reassertion of malignancy usually with increased virulence.

Mild Treatment.—The X-rays must be used gently if the best results are to be obtained. For this the tube should not be nearer than 9 or 10 inches from the patient and should be employed not oftener than about three times a week for fifteen minutes at a time. If the patient bears the treatment well, this should continue for six weeks, but should be discontinued if signs of dermatitis result. On the other hand, where at the end of three weeks there are no signs of dermatitis, the length of the exposures and their frequency may be increased under proper circumspection. If this technic is followed, burns do not result and one avoids the serious objections to the use of the X-ray.

Illustrative Cases.—Dr. Morton exhibited a patient, aged fifty-seven years, in whom an excellent symptomatic cure had been obtained in an extremely difficult case of epithelioma of the face which had lasted for ten years and had involved the cheek and eyelids rather widely. The patient first noticed a small purple patch on the cheek just in front of the cheek bone which gradually became larger and scaly. After some time an open ulcer resulted which spread until it was half an inch in diameter. An extensive operation for its removal was done in the hope of going wide of all cancer tissue. Malignant ulceration of the edges of the incision occurred, however. The lower lid became involved in a rapidly progressive ulcer, which threatened to invade the ocular tissues. A probe could be made to penetrate rather easily some distance into the orbit. As the result of two months of treatment, all the induration had practically disappeared and the ulcer was scarred over with good cosmetic results. Undoubtedly, in this case, if the use of the X-ray had been continued after cicatrization had taken place, the scar would have broken and the result would have been inevitable failure. Many failures are due to this overzeal in the use of the X-rays.

Lingual Cancer.—This occurred in a physician, forty-eight years of age, who noticed a rather deep, punched-out ulcer at the base of his tongue. He saw some of the best surgeons in the country who advised immediate operation. He was treated, however, by means of radium and after a time the ulcer filled up and the tendency to further malignant degeneration, for there seemed no doubt of its malignancy, disappeared. In this case, the patient being a physician, and the well-known tendency of malignant disease of the tongue to run a rapid course being thoroughly appreciated, he was asked to take the risks in the case himself. This he did with some misgivings, but with all the more confidence, because he felt that the use of active measures, far from making subsequent operation more difficult, would rather add to the chances of ultimate surgical success. This would seem to be the way in which this whole subject of radio-activity as a help in surgery must be considered.

X-ray for Sarcomata.—A very large number of sarcomata are now being treated by means of the X-rays. A very few have been cured though most have not been benefited in any permanent way. Just what cases are likely to be benefited it is impossible to determine. The way of relief in most cases is not known. In some cases tumors as large as a child's head have been made to disappear after all other methods of treatment have failed. In many cases of sarcoma distinct benefit is derived from exposure to the X-ray and there seems to be an intermission in the growth of the tumor, though recurrences are the rule.

Mammary Carcinomata.—As a rule, of course, malignant tumors of the breast demand removal. It is well known, however, that in most of these cases, recurrences take place in spite of extensive excision. Cancer cells have invaded the tissues so deeply through the lymphatics that it is impossible to secure their obliteration and the consequence is inevitable recurrence. It is these outlying cancer cells in the lymphatics well beyond the boundaries of the cancer itself, that may be reached by radio-active remedies. If the X-rays are employed for six weeks before operation and then just after, the patient's chances of cure are distinctly greater than would otherwise be the case. The X-rays are not employed for destructive purposes, but just short of dermatitis. The good effect of this suggestion may be seen in the way cutanous cancer clears up under treatment and also from the success in bringing about the disappearance of the current nodules of cancer after operation.

Question of Slow Healing.—It has been objected that the tissues do not heal so well after treatment by radiation, but even if this were true, it would be better to have slow healing than to have recurrence of the malignant growth. Gangrene is said to occur more easily after exposure to the X-rays, but this is evidently due to the effects of technic at the time of the operation. It would seem that the ideal treatment for malignant growth would be a combination of radio-active influences with surgery.

No Cures of Malignant Disease.—Dr. William B. Coley said that notwithstanding the number of reports of cures that have been made, it is very doubtful if there is any justification for declaring the permanent curability of sarcomata by means of the X-ray. All the early successful cases have shown eventual recurrences with rapid progress which the X-rays are totally unable to affect favorably. A large sarcoma of the femur reported as cured, later showed enlargements of the inguinal gland with metastasis to the mesenteric gland and to the internal organs with fatal results. The very large tumor of the neck, whose disappearance had been brought about by means of the X-rays, was followed later by sarcoma of the mesentery and then of the inguinal gland. Altogether some half dozen remarkable cases of apparent cure of sarcomata were reported, but all of these died within the year after the beginning of the X-ray treatment.

Delay of Fatal Issue.—In one case, seen first three years ago, the sarcoma proved to be of the round-cell variety involving the femur, and amputation of the hip-joint was advised but refused. Pathological examination showed that there was no doubt of the diagnosis. This improved rapidly under the X-rays. The leg decreased very much in size, the patient gained in weight, and in general a cure seemed to have been effected. After a time, however, metastasis took place to the pectoral region and the right inguinal gland became extensively involved. The X-rays failed to bring about improvement in these, but under injections of erysipelas toxins, the glands broke down and gradually disappeared. At the present time, there is no visible evidence of the presence of sarcomata, though there are still some sinuses. The patient can scarcely be said to be cured, however. This case has lasted longer than any other case of sarcoma of the femur that Dr. Coley has ever seen.

Inevitability of Recurrences.—A large spindle-cell sarcoma of the abdominal wall disappeared for a time under the influence of the X-ray, but recurrence took place with an eventual fatal issue from the malignant disease. In this case the successful result with the X-rays was obtained after the mixed toxins of erysipelas and *Bacillus prodigiosus* had for a time caused some improvement yet later failed to bring about any reaction. In nearly the same way, however, the X-rays seemed to lose their power to arrest the malignant disease. In the case of cancers of the breast, recurrent nodules can nearly always be made to disappear by means of the X-rays, but in spite of careful continuance of the treatment, these return.

Failure in Prophylaxis.—When the X-rays were first introduced as a remedy for malignant disease, Dr. Coley was hopeful that they would prove an excellent prophylactic against recurrence after operation. He is now much less hopeful than he was two years ago in this regard. He has seen metastases occur while the principal tumor was under treatment and showed every sign of getting better. In fact, in some cases, exposure to the X-rays seems to add to the virulence of the malignancy of outlying portions of the cancerous growth. In cancer of the lip Dr. Coley has seen the epithelioma become hopelessly inoperative from metastases while the X-rays were being employed with apparently good effect. Undoubtedly the X-rays do cure small superficial tumors, but individual cases are not improved and failures have been reported even under what seemed most favorable circumstances. Dr. Coley considers that the X-rays should never be recommended in easily operable cases. Their place, if any, is for inoperable cases and for recurrences, for now there is no surgeon who cares to operate in these cases. It is not to be expected that they will produce absolute cures, but they will give the patient of certain severe symptoms relief and undoubtedly lengthen life in many cases.

Dr. John B. Walker said, in continuing the discussion, that he thought he had seen some good from the use of the X-rays before operation in preventing recurrences from outlying portions of cancer tissue. This subject is, however, a very difficult one to decide and will require much more experience than is available at the present moment.

Dr. Deaks said that undoubtedly much harm has resulted from the use of the X-rays in the hands of inexperienced persons. With proper care, good results can be obtained, but the experts in X-ray work are needed for this.

Cancer in X-ray Burns.—Dr. Morton, in closing the discussion, said that a certain number of cases of cancer developing in X-ray burns have been reported. This did not indicate, however, at all that the X-rays were likely to foster malignancy and the reports of such cases are very meager. It seems probable that the only effect produced is a devitalization of tissue which predisposes to the invasion of malignant disease. After all it must not be forgotten that malignant tumors occur as a consequence of trauma and of other conditions which produce lower resistive vitality. Beyond this there seems to be no specific effect of the X-rays in the production of malignant disease.

Fluorescence and the X-rays.—Dr. Morton has found for some time that the favorable effects of the X-rays are much increased if some substance is administered to the patient which causes the presence of the phenomenon known as fluorescence in the patient's tissues. For this purpose Dr. Morton employs fluorescein or at times quinine. Recent reports from France show that five patients treated in this way in conjunction with the X-rays have remained cured for a year. In Dr. Morton's own experience, patients suffering from recurrences of breast cancer or subsequent cancerous enlargement of glands, are especially likely to

be helped by this means. When the malignant process shows a tendency to generalize, then the X-rays, no matter how employed, do not put a stop to the process. There is, however, no known method of treatment that will effect such a condition. The pre-operative use of the X-rays, however, seems to be the best possible method of preventing this generalizing process. It acts quite as favorably for the patient after operation as do the modern methods of sepsis and antiseptis for his preservation from postoperative complications. Undoubtedly this is the most promising field of X-ray work at the present time.

X-ray Burns and Malignant Disease.—Dr. Coley said that undoubtedly there are a certain number of cases in which cancer has been directly produced by negligence in the use of the X-ray. A prominent physician of Western New York, who had for several years employed the X-rays in the treatment of others, developed carcinoma in both hands. The pathological examination of the tissues was very carefully made by Dr. Welch, of Baltimore, who pronounced them typically malignant. In this case, the occurrence of the malignant disease in both hands simultaneously seems to place the question of etiology beyond all doubt and makes it clear that the long-continued irritation of the X-rays may of itself suffice to produce cancer. Cases of a similar nature are gradually finding their way into the literature.

Psoriasis and Cancer.—Dr. Royal Whitman called attention to the fact that the superintendent of the Massachusetts General Hospital had developed cancer in both hands, following a prolonged continuance of lesions of psoriasis. It seems evident that it is not some specific effect but the lessened resistive vitality consequent upon long-continued irritation which predisposes to cancer.

Dr. Morton, in closing the discussion, said that such accidents are due to the improper use of the X-rays and that the use of any, even the best remedial agent, may prove less harmful. The abuse of a good thing cannot be urged against its use in a proper way.

NEW YORK OBSTETRICAL SOCIETY.

Regular Meeting, held January 10, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

Cases of Extra-uterine Pregnancy with Atypical Symptoms.—Dr. Herman J. Boldt demonstrated the specimens and related the histories of the four following cases: *Case I.*—Patient had been curetted four months previously for an abortion. When first seen by Dr. Boldt she had been bleeding without pain for five weeks, and from the physical signs,—a large and soft uterus, insensitive pelvic organs, a diagnosis of an abortion was made. The bleeding was stopped by the internal administration of stypticin and local treatment, but nine days later, because of a sudden attack of intense epigastric pain and moderate drawing pains in the lower abdomen, associated with fainting and sensitiveness of the cervix, the previous diagnosis was changed to that of a probable rupture of a tubal pregnancy. Immediate operation was refused, and the patient's condition improved until the second day, and just before a vaginal puncture was contemplated for diagnostic purposes, a sudden collapse occurred. On account of the delay in obtaining the written consent of the husband to operate, the condition became so poor that a rapid vaginal operation was done without anesthesia. A very large quantity of blood with the small embryo escaped. The bleeding tube was clamped. Death in two hours. It was found that the tube had been held so high by adhesions that it had been impossible to feel it at the previous examinations. *Case II.*—Patient forty-six years of age. Had had seven children, the last ten months previously. Menstruation that had occurred twice since her labor, last appeared eleven weeks previously. For eight weeks there had been periodical attacks of abdominal pain lasting about six hours, and located in the center of the abdomen, with considerable abdominal distention. A diagnosis of cirrhosis of the liver had been previously made by several physicians because of the anæmia and the abdominal distention that was thought to be due to ascites. The pelvic examination which was very difficult showed the uterus to be slightly enlarged, freely movable and not tender. There had been no pain for the past week. Consent to an exploratory laparotomy was not obtained for three days, when a very large amount of blood was found free in the peritoneal cavity and a fetus of 3½ months' gestation. The placenta attached in part to outer extremity of the left tube, but chiefly to the sigmoid flexure of the colon, was easily removed. Patient died from shock four hours later. *Case III.*—Patient thirty-six years of age. Had had six children; the last six years ago. Atypical bleeding for which a curettage had been performed persisted until the time of Dr. Boldt's first observation. A rapid pulse, anemic appearance, sensitive abdomen, and the presence of a soft mass behind the uterus, made the diagnosis of a ruptured tubal pregnancy with a continuation of the bleeding probable. The operation, confirming this diagnosis, was followed by rapid convalesence. *Case IV.*—The patient from whom this specimen was removed had never been pregnant, and had always been perfectly well. One menstrual period had been skipped, and a sudden and severe attack of abdominal pain followed by collapse was found at the operation, performed two hours later, to be a ruptured tubal pregnancy.

Double Ovarian Abscess due to Infection with Colon and Gas Bacilli.—Dr. H. J. Boldt presented the specimen consisting of the uterus, tubes and ovaries he had removed from a patient, thirty-five years of age, who had always been sterile, and with the exception of irregular pains in the abdomen, had always been well. The husband had had an attack of gonorrhea of three years' duration before marriage. In July, 1904, an acute illness began consisting of chills, fever, prostration and griping abdominal pain. The diagnosis of ovarian abscess was confirmed by the operation. During the nucleation of the right tumor a very audible sound of gas was followed by collapse of the sac and the escape of about a dram of thin and very foul-smelling pus. Dr. Boldt considers the primary cause of the disease to have been a gonorrhea. The tubes, showing slight catarrhal inflammation had evidently been spontaneously cured, but the ovaries had grown worse and in July had become infected with colon bacilli, and probably also with gas bacilli, which accounted for the griping character of the pain.

Hysterectomy for Puerperal Sepsis.—Dr. H. J. Boldt presented a uterus he had removed from a patient, who, upon the fourth day following a normal labor developed chills and a temperature of 104° F. The uterus was large and lax, but contained nothing but a whitish membrane in the cervical canal. The greater part of the broad ligament was removed with the uterus. Diphtheria developed a few days after operation from which she recovered. No streptococci were found in the blood and no diphtheria bacilli in the cervix.

Excision of Portion of the Uterus and Broad Ligament for Puerperal Sepsis.—Dr. H. J. Boldt related the history of a patient who had had chills, fever and

pain since the first day of the puerperium. A curettage had been performed upon the fourth day and a few small pieces of tissue were removed. The right side of the uterus and broad ligament with its thrombosed vessels were removed upon the ninth day. The left side of the uterus appeared to be normal. A retroperitoneal abscess containing about 30 c.c. of sanguinous pus, was emptied. This patient recovered.

Dr. G. L. Brodhead, who had seen this last case, stated, in the discussion, that the delivery had been normal, the head being on the perineum when the attendant arrived. She had suffered from pain during the pregnancy, so that a pyosalpinx had been thought to be present.

Fatty Degeneration of the Placenta as a Cause of Stillbirth. Should a Prophylactic Induction of Labor be Performed.—Dr. G. L. Brodhead related the history of a patient who had a stillbirth at the seventh month without any known exciting cause, except a very marked fatty degeneration of the placenta. He would like to ask the members of the Society if it would be justifiable to induce labor in a subsequent pregnancy at the eighth month in order to avoid a repetition of this occurrence.

Dr. Austin Flint, Jr., stated that as fatty degeneration occurs normally at the end of pregnancy this might be only the exaggeration of a normal condition, unless there is some systemic cause such as syphilis. He recalled a patient who had had five stillbirths and had been sent to him for a premature delivery. The history on examination revealed no cause, and he allowed the patient to go to full term with a living child as a result.

Dr. Malcolm McLean said that he believes such degenerations are most often due to syphilis, even without any history, because of his almost uniformly good results from the administration of iodide of potash in doses of 5 to 10 grains beginning in the first month.

Dr. James D. Voorhees related the history of a woman, forty-two years of age, who had given birth to four macerated fetuses. The administration of sodium iodide in 10 grain doses, intermitting it for two weeks, every two weeks, was successful.

Dr. H. N. Vineberg related an instance in which he thought fright was the cause of the death of the child.

Shall Gall-stones or other Pathological Conditions in the Abdomen be Treated when Operating for Pelvic Disease?—Dr. Brooks H. Wells opened the discussion, limiting his remarks to a consideration of the appendix and gall-bladder. After three experiences in operating upon the pelvic organs, in two of which a second operation was required for appendicitis, and in one an obstructive cholecystitis developed, he had made it his practice to examine the appendix whenever he opened the abdomen for pelvic disease, and whenever he felt it could be done without materially increasing the risk of the operation, he had removed it. Of a fairly large number of appendices removed in this way without mortality and without materially increasing the discomfort incident to an ordinary convalescence from an abdominal operation, fully half showed gross evidences of disease. In a case without pus the primary operation is usually completed first, but in the presence of pus, the appendix should be treated first, unless the case promises to be so serious that any extra manipulation must be avoided. If the operation requires only a small incision it may be best made a little to the right of the median line in order to facilitate the search for the appendix. He had never practised any more extended examination of the abdominal contents until in the fall of 1901 he had an experience in which, during an operation for the relief of symptoms due to a retroverted and adherent uterus, he had passed his hand up to the gall-bladder, because of the presence of malnutrition and persistent gastric symptoms, and found a mass of biliary calculi, and removed them through a second incision. Since this experience, he has made it a practice to palpate the gall-blader through the pelvic incision, when the patient gives a history or physical signs suggestive of gall-bladder disease, provided he felt it could be done without too much added risk. This examination should be made at the beginning of the pelvic operation with the aseptic gloved hand wet with warm normal salt solution, which is passed palm upward between the abdominal wall and omentum. Through the ordinary median suprapubic incision, made long enough to admit the hand, not only the pelvic regions, the appendix and the liver, but also all of the other abdominal organs may be palpated with considerable facility and with a minimum of harm.

Cholecystitis Simulating Puerperal Sepsis; Cholecystotomy; Recovery.—Dr. Hiram N. Vineberg reported two cases of this affection.

In the literature of the past ten years he has found the report of three such cases in the puerperium, and two in pregnancy.

Case I.—Nine days after a normal labor, chills, fever and abdominal pain began, which persisted for three days, presenting a picture at first of acute general peritonitis without nausea or vomiting. The pain and tenderness were most marked in the right hypochondriac region and the pelvic organs seemed normal. The operation revealed a very much distended gall-bladder containing pus, dark-colored bile and numerous small stones. Temperature became normal upon the third day and the convalescence was uninterrupted. There had been a previous history of "cramps in the stomach extending over a period of several years."

Case II.—Ten days after a normal labor, except for the manual removal of the placenta, patient was attacked with severe chill, followed by fever and pain in the left iliac region, which after a few hours spread over the entire abdomen, but was most marked in the right half of the abdomen. Decided tenderness and the presence of an ill-defined mass in the region of the gall-bladder with the absence of physical signs in the pelvis were found by the operation to be from an acute infection of the gall-bladder. The gall-bladder contained very little pus, being chiefly filled with a thick, dark fluid and numerous small stones. Convalescence was somewhat protracted by rheumatic pains in both legs.

Dr. H. J. Boldt stated that he considered Dr. Wells' position to be correct in regard to the examination of the gall-bladder, if symptoms are present that would lead one to suspect it was diseased. In the case of the appendix, he thought it to be wrong not to remove it unless positive contra-indications are present. In these cases he invaginates the appendix by the aid of a specially designed probe which catches the tip of the appendix.

Dr. Andrew F. Currier said he would be unwilling to formulate any rule for every case and he would not remove the appendix every time he opened the abdomen, as he was not yet prepared to regard the appendix as a useless organ, composed as it was of lymphoid tissue, it probably had something to do with digestion. The removal of the appendix, too, may not prevent the occurrence of perityphilis. In regard to the gall-bladder, he would not make too extensive an examination unless symptoms pointing to its disease were present.

The President then asked each member present to answer the following questions: (1) Is it your custom,

when performing abdominal operations, to always examine the appendix? (2) Do you remove it if not diseased? (3) Do you remove it if diseased? Twelve out of seventeen answering these questions stated that they believed in examining and removing whether or not diseased in all cases if the patient's condition warranted it.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, held January 6, 1905.

Supposed Nephrolithiasis.—Dr. George E. Brewer showed a patient upon whom he had recently operated for supposed nephrolithiasis. He said that the supposition was based upon positive gray and ureteral findings, combined with a very typical clinical picture. After the usual Cooper incision, which he had found most serviceable for exposing the ureter, and a thorough examination of the organ, no stone was found. He incised the ureter and passed a probe into the bladder. As it slid in, he thought he felt a little resistance, but was not certain. He endeavored to explore the bladder with a finder to see if he could feel the stone, but without avail. The patient made an uninterrupted recovery and has had no subjective signs since. He concluded that the stone had been passed between the time of establishment of diagnosis and operation.

Dr. Brewer showed another case which he had operated upon for supposed stone in the ureter. Again the X-ray was confirmative, the only negative findings in the case being those of Dr. Klotz, who reported the ureteral stoma on the affected side normal. On section, no calculus was found in the ureter, but a stone-like mass was palpated overlying the organ which, on examination, was found to lie free in the peritoneal cavity. Careful dissection revealed a mass made up of two concretions, one larger and entirely calcified, the other small and impartially metamorphosed. Careful traction on this showed it to be the calcified tip of an appendix epiploica. Dr. Brewer noted that this discovery was a most fortunate one, for it cleared away some of the doubts which had been too constantly associated with these peri-ureteric bodies. Their existence, he said, had been recognized by the X-rays, and at operation, on numerous occasions, and he was glad to know definitely at least one source for them.

Absence of Symptoms after Renal Tear.—Dr. George E. Brewer showed a case which presented the following interesting history: The patient had been struck by a trolley car and knocked down. He had, however, been able to walk. He was helped to the hospital, and as a precautionary measure was put to bed. The nrst urine he passed was bloody. He had no pain whatsoever and showed no objective signs except a suspicion of dulness in the flanks. About five hours after, he suddenly collapsed, and, as Dr. Brewer happened to be in the hospital at the time, he was put upon the table at once. In half an hour, his symptoms had advanced from an absolutely negative condition to one of a grave and most alarming character. The abdomen was opened, the organs evicerated, but all were found normal. The hemorrhage was seen to come from the retroperitoneal space. The abdominal wound was quickly closed and the usual renal incision made. Immediately on section a large portion of the kidney floated out through the wound, with a great gush of blood. The remainder of the organ was seen to consist of two pieces almost torn apart. The hemorrhage was terrific. The man was nearly dead. He was given 3,000 c.c. of infusion. Clamps were put on the pedicle and he was put to bed. By good fortune he recovered.

Importance of Blood in the Urine.—Dr. Brewer said that, observing a number of these cases had convinced him that a general rule should be made to operate upon every individual who had received an injury in the loins or flank and who thereafter passed blood in the urine. Such cases should not be allowed to wait until other signs developed. Speaking of the value of X-ray in diagnosing nephrolithiasis, he said that very few errors would be made if Dr. Cole's rule was followed, to wit: That a diagnosis is not positive unless the outline of the psoas and the transverse processes of the lumbar vertebræ are distinctly visible in the radiogram and further that the edge of the shadow of the supposed stone be closely and clearly defined.

Differential Diagnosis of Calculus Shadows.—Mr. E. W. Caldwell exhibited a number of radiograms which showed very clearly the pseudo shadows which had given rise to many mistakes in the diagnosis or ureteral and renal stone by the X-ray method. He cited a case in which diagnosis of three ureteral stones had been made by a very competent X-ray operator. These shadows lay directly in the course of the ureter and had been interpreted both by the X-rayist and by the operating surgeon to be ureteral concretion. Mr. Caldwell himself obtained an exact duplicate of the previously made plate. This, it should be conceded, placed all doubts of diagnoses out of the possible and the surgeon operated. He was disappointed to find no stone in the ureter. The speaker had noticed that many of these pseudo-shadows are to be seen in the neighborhood of the ischiatic spine. It had occurred to him that they might be cast by sesamoid bones in one of the obturator tendons. He had been unable, however, so far to prove this supposition.

Dr. George E. Brewer stated that in his opinion the calcification of an epiploic appendix was probably but one of a number of different origins for these extra-ureteral concretions.

A Report of 84 Operations on the Kidney and Ureter.—Dr. George Emerson Brewer said that observations extended over the last ten years. Nine only had been performed during the first five years, while 39 had been done within the past twelve months. He reported first the results of the operations; secondly he enumerated the pathological conditions found, and third, he called especial attention to certain groups of cases presenting features of unusual difficulty in diagnosis. Of the 84 operations, there were 27 nephrotomies with 8 deaths; 27 nephrectomies with one death; nine nephrorrhaphies with no mortality; 5 pelvic ureteral sections with no mortality; 10 decapsulations on five patients, with two deaths; six emergency operations with one death. Analyzing the 27 nephrotomies, it was found that pyonephrosis was present in three cases, pyelonephritis in one case, tuberculosis in two cases, intermittent hydronephrosis in one case, multiple septic infarcts in four cases, calculus in 11 cases, while in five cases of exploratory nephrotomy, no lesion was found. Of the 27 nephrectomies there were two cases of primary carcinoma, two cases of hydronephrosis, two cases of early tuberculosis, seven cases of pyonephrosis, six cases of stone, two

cases of ureterovaginal fistula following hysterectomy, one case of septic pyelonephritis, one case of severe hemorrhage following exploratory nephrotomy and two cases of multiple septic infarcts. In discussing this series of nephrotomy and nephrectomy cases, Dr. Brewer said that in every one, the possibility of calculus as a causative factor was considered. In 36 cases the history suggested very strongly the presence of calculus in the kidney or ureter. In but 21 of these, a subsequent operation confirmed the suspicion. In the remaining 15, nine showed other lesions, while in six no pathological condition was evident. In other words, in 45 per cent. of the cases which gave a clear history of calculus, and which in many cases were confirmed by physical signs, cystoscopy, urinary analysis, ureteral catheterization, ureteric meatoscopy, and, in a few cases, by a positive X-ray plate, diagnosis was wrong. This high percentage of error, however, was not to be expected in the future, because of the perfection of technics, a great number of these cases having been operated on prior to the development of modern methods. The author then analyzed the characteristic subjective and objective signs of nephrolithiasis. Pain, he said, was perhaps the most constant sign of the disease. He described four classes of pain, as follows: (1) Severe paroxysmal pain, of the classical kind; (2) mild paroxysmal pain, radiating less constantly downward; (3) severe, constant pain; backache; (4) mild, constant pain, or discomfort. Of 21 cases 13 had severe paroxysmal pain, four had pain of the second class, one of the third class and two of the fourth class. Vomiting was found to be a very constant accompaniment of severe colic. Of the 21 cases 11 had vomited; frequent micturition was present in 12 of the 21 cases; temperature was absent in all uncomplicated cases; tenderness was present in every case. In sixteen it was found in the region of the kidney, at the costovertebral angle. Renal Tumor: In but eight of the 21 cases could the kidney be felt. Hematuria often occurs in very small quantities, such only as can be detected by the microscope. Ten of the 21 cases passed blood. In seven it was quite profuse; in three it was in miroscopic amount. It was important to examine the urine immediately after a paroxysm of pain. The sign of pyuria was of very little value. The author considered the X-ray the most valuable of all routine examinations. Spontaneous hemorrhage occurring during rest and sleep generally means new growth. Hemorrhage following exercise and accompanied by pain suggests calculus. Cystoscopy and ureteric meatoscopy gave correct interpretations in 66⅔ of the cases examined.

Suspected Cases of Calculus.—Dr. F. Tilden Brown said that he had experienced much difficulty in interpreting the X-ray plates of suspected cases of calculus. He agreed with Mr. Caldwell that the pseudo shadows were most frequently seen near the ischiatic spine. He showed a series of plates which had been taken after the introduction of a styleted ureteral catheter. This afforded a guide of the exact position of the ureter and enabled one in most cases to exclude peri-ureteric concretions. The second point he made was that, by proper manipulation, a considerable number of ureteral stones may be washed out of their lodgment without any operation at all. He advised a gradual dilatation of the organ up to the stone, followed by a passing into the ureter beyond the stone of a very small catheter. Through this catheter he would inject, under moderate force, boric acid solution, and thus, by increasing the proximal pressure, drive the stone into the bladder.

Dr. Willy Meyer spoke of the importance of properly interpreting the conditions seen at the ureteral stomata. He had for some time considered it an unfailing diagnostic symptom.

Value of Chromocystostomy.—Dr. M. S. Kakkels said that the value of chromocystostomy had not yet been fully appreciated. He has had prepared tubes of indigo-carmine, which he exhibited to the section. This material is difficult to obtain in sterile form. It, however, is the most satisfactory material to change the color scheme of the urine. The normal excretion at the ureteral stomata is from fifteen to twenty seconds. Fifteen minutes after injection of indigo-carmine, under normal conditions, the urine should be brightly colored.

Dr. Robert T. Morris said that he had recently operated upon a case in which he had found the tip of the appendix calcified and adherent to the ureter. This he presented as a further explanation of the troublesome peri-ureteric bodies.

Cryoscopy in Renal Disease.—Dr. W. W. Miller said that the cryoscopic examination of the blood of a certain number of very questionable cases had been of great value in determining for or against operation. He said that the method depended upon the well-known physical law that the freezing-point varies according to the osmotic density, rather than as a specific gravity. Casper, Richter, Kümmel and others have done most of the cryoscopic work. Bechmann's apparatus is probably the simplest to use and gives very accurate results. The writer exhibited this apparatus and demonstrated to the section the determination of the freezing-point of some serum from a case under observation. Normally, he said, the freezing-point should be .56° C. for the blood. For the urine, from 1.2° to 2.5° C. It was remarkable that, even after an intravenus infusion of 2,000 c.c., the freezing-point of the blood would become normal in four hours. He concluded that cyroscopy indicates to what extent the kidneys are getting rid of the effete products of metabolism, and that, in certain cases of unilateral renal disease, it was a most valuable aid to differential diagnosis.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, held February 7, 1905.

Rhinolalia.—Dr. A. H. Andrews showed a young man, nineteen years of age, who has had a defect of speech almost from infancy. Patient's mother died of consumption ten years ago; father still living and in good health; has an elder brother and elder sister, both in good health. Patient has had the ordinary infantile diseases; but does not know that he has ever had any special trouble with his ears, nose or throat. He has been treated for this defect in his speech without improvement. His occupation is that of billing clerk. Patient counted up to seven or eight in order to bring out the quality of his tones.

Dr. Geo. E. Shambaugh asked if Dr. Andrews had found any anatomical defects.

Dr. Andrews replied that he had found anatomical peculiarities, but whether they are defects or not is open to question. The peculiarities were an unusually long anteroposterior measurement of the postnasal space. From the soft palate at rest back to the pos-

terior pharyngeal wall is a greater distance than one ordinarily sees.

Dr. Joseph C. Beck said that about a year and a half ago he presented a young woman to the Society who had a very similar condition. At that time he went over the subject of defects of speech, particularly of this type, called rhinolalia. Cohen, of Vienna, and Makuen, of Philadelphia, have very clearly described such cases. Dr. Beck remarked that it is an undevelopment of the muscles of the palate from early childhood, or rather an encouragement of baby talk, in plain language, the child not being alowed to develop the palatal muscles, consequently there is an imperfect application of the tongue to the teeth and proper part of the palate. He was not able to develop these muscles in his case until he resorted to a surgical procedure which consisted of the injection of paraffin into the posterior pharyngeal wall in direct line with the soft palate. When the patient would say "ah,' or attempt to swallow or speak, she would shut off a large space that was present, as in Dr. Andrews' case. Following the injections, as soon as the paraffin hardened, she could say the word "plate" distinctly. She wore an artificial velum, but with imperfect success. He stated at the time he reported this case that the treatment in these cases of injections of paraffin or any appliance was not very satisfactory; that these cases required an educational method of treatment. He thought if Dr. Andrews would take the time, as he did with his patient, of taking the tongue of the patient and placing it where it ought to be placed, with proper breathing and gymnastic exercises to develop the muscles, he might be able to overcome the defect in speech of his patient.

Dr. Elmer L. Kenyon said he had not noticed any defect in the enunciation of the patient, either of the vowels or consonants. There was very little movement of the soft palate in this case. In some patients the soft palate in speaking does not approximate closely to the posterior wall, and yet the speech is not markedly nasal. That seems almost imposible, and yet it is true. In other words, with a clear space admitting air into the nose, speech is not distinctly nasal in one particular case which he has in mind. He should think the thing to do would be to train the patient to grasp the feeling which one has or may have when the soft palate approximates the posterior wall. It would seem to him well to press the soft palate gently up against the posterior wall until the patient himself appreciates the feeling of the muscles as they go against the posterior wall; then, having appreciated that feeling, the patient himself can attempt to produce those same movements without the aid of any muscular pressure against the soft palate. Another thing would be to cause the patient to direct his speech outward through the mouth, and at the same time downwards in his throat.

Dr. Norval H. Pierce asked whether the patient ever throws fluids up into his nostril accidentally, to which Dr. Andrews replied that "sometimes he does, but it is very seldom."

Dr. Andrews, in closing, said that the patient is not conscious of his defect except when he takes cold, and then he realizes that his voice has a nasal tone. He has made some experiments with this young man, and among them he passed a string back through the nostril, brought it out at the mouth, tied a pledget of cotton to the string, and drew it up into the nasopharynx. While this was present, the improvement in his voice was remarkable. He has considered the advisability of injecting paraffin, but knowing that paraffin is much easier to inject than to remove, he has hesitated until he is thoroughly convinced that it is the proper method to pursue. He has seen a number of cases of paralysis of the soft palate following diphtheria, in which the tone was very similar to this young man's, and, in order to confirm the results of his experiments on him, he introduced a retractor into his own mouth, drew forward the soft palate, and then used his voice, with results very similar to what we have in this case. So he thinks there is no question as to the real cause of his trouble; but the great question is how to relieve it.

Mastoiditis in Typhoid Patients.—Dr. P. J. H. Farrell read a paper on this subject, in which he gave brief histories of cases he has operated upon for mastoid trouble that followed typhoid fever. These cases were interesting for two reasons: First, the patients were weak, emaciated and exhausted from a long siege of typhoid fever, and therefore not in a good condition to take an anesthetic or to undergo an operation. Second, the evidence of the rapid and extensive destruction of tissue was unusual in acute cases.

Dr. Henry L. Wagner, of San Francisco, asked whether the pus was examined in these cases. Dr. Farrell replied that in several of them there was a history of streptococci, and in two of the cases pus was examined. In the others he did not think there was any examination of the pus made.

Dr. Wagner had seen similar cases in Pittsburg at the time he was there with Dr. Jackson, who had made similar observations also as to the occurrence of acute laryngitis, and it is certainly of the utmost importance to know whether the typhoid germ has been found or not, or whether it is a mixed infection.

Dr. A. H. Andrews stated that from the reading of the report of the cases it would seem to him possible that some of them may have been ear trouble entirely, and that typhoid had nothing to do with it, unless bacteriological and other tests were made, and gave unmistakable evidence of typhoid. He has seen a number of cases in which the family physician had made a diagnosis of typhoid, and when mastoid symptoms developed, the otologist was thoroughly convinced that it had been otitis from the beginning and typhoid had absolutely nothing to do with it.

Dr. T. Girdon Wilson said that some years ago he took great interest in otitis media, developing in typhoid fever cases. He watched the cases carefully, made a bacteriologic examination of the blood, and of the discharges from the middle ear, and in no case did he find any trace of the typhoid bacillus in the ear discharge, nor in the mastoid discharge. Very often when he examined the throat in undoubted cases of typhoid, he could find no trace of the typhoid bacillus; but very constantly he found the streptococcus and the staphyloccus. Of 350 cases examined, only one case was found of mastoid disease complicating typhoid.

Dr. Norval H. Pierce believes it is a valuable method of investigation to consider the various types of ear disease as they occur in various diseases. The diseases of the middle ear as they occur in typhoid have many peculiarities. Not only are the affections of the middle ear peculiar, whether or not produced by the typhoid bacillus *per se*, but the affections of the internal ear occurring in typhoid are peculiar and interesting. They have peculiar prognoses, as well as peculiar courses, and he sees no reason why we should not report these cases as they occur, and endeavor by closely studying them to adduce therefrom most valuable knowledge.

Dr. Farrell, in closing, and in reply to the doubt expressed by Dr. Andrews as to whether these were really typhoid cases, said that the history sheets and charts show that all of them ran the typical fever curve, with

rose spots on the abdomen, and Widal, diazo and blood cultures showing typhoid bacilli, so that there was no question about the accuracy of the diagnosis. To begin with, they were not his typhoid cases; they were his mastoid cases, and came to him as such for operation. Their histories were carefully taken and there can be no question about the diagnosis being accurate and complete as to typhoid. These cases showed a more severe and destructive course than we generally meet in acute cases. In all of them the necrosis was very extensive. The rapid convalescence from typhoid was most marked in all cases operated upon.

The Maxillary Antrum; the Removal of the Greater Part of Its Nasal Wall for Empyema.—Dr. Otto T. Freer read a paper with this title, and presented a patient upon whom he had done the operation. He referred to the work done by Holbrook Curtis in this direction, and to twelve cases reported by Claoué, and seven reported by Escat. The operations in nine of Claoué's cases and in all of Escat's resulted in perfect recoveries. The imperfect relief and annoyance to patient and surgeon given by alveolar drainage was considered, and the reluctance of patients to consent to the radical Caldwell-Luc procedure, as this requires general anesthesia, and ablation of most of the facial wall. Compared to this severer method, Dr. Freer gave as the advantages of the operation he described: Operation under cocaine anesthesia instead of narcosis; the avoidance of resection of the facial wall of the antrum; the free access in spite of this given to the interior of the antrum for inspection and curettage, and the perfect drainage and ventilation of the antrum obtained. While admitting that the radical operation would still be required for the severest cases, the author contended that in the great majority the nearly complete removal of the nasal wall would suffice, as it offered the advantages of the radical operation without its usually needless removal of the facial wall. Dr. Freer's patient had had an empyema of the right antrum of Highmore, with intensely fetid purulent discharge for a year. Diagnosis made by transillumination and washing through a Myless trocar, which had been made to pierce the antrum in the inferior meatus. The operation was performed as follows: Local anesthesia was produced by the application with a minute swab of powdered cocaine. The anterior two-thirds of the right inferior turbinal were resected with Grunwald scissors, and angular knife. A long straight trephine was then applied to the outer wall of the nose in the inferior meatus, its shank pressing the cutaneous septum, and with it the nasal tip, strongly over to the left, so that the trephine crossed the inferior meatus at an angle of about 45 degrees. After perforating the nasal wall of the antrum with the trephine in the place indicated, a long barrel-shaped bur was placed in the hole made, and the greater part of the nasal wall of the antrum cut away. The opening was still further enlarged with Rhodes' large punch forceps. The window so made in the nasal wall of the antrum extended from above the lower border of the middle turbinated body in the middle meatus downward to the nasal floor, the base of the nasal wall of the antrum being trimmed off to the very bottom with the bur. Behind, the opening extended to the perpendicular plate of the palate bone; in front, to within five-eighths of an inch of the apertura pyriformis. Large amounts of foul, coagulated pus escaped, and all of the interior of the antrum could be inspected excepting the inner surface of its facial wall. Curettage was not needed, but could have been thoroughly performed. The hemorrhage was insignificant. The interior of the antrum was palpated with the little finger. The cavity was firmly packed with a long strip of lint impregnated with subnitrate of bismuth. Complete recovery ensued in about three weeks. Dr. Freer warned of the danger from arterial hemorrhage if the posterior wall of the antrum lying in front of the sphenomaxillary fossa was pierced, or if the palatal bones were included in the resection. The success of the operation depends on the making of a large opening and especially on the complete cutting away with the bur of the ridge between the floor of the nose and that of the antrum, as only a large opening will remain permanently.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held January 5, 1905.

The President, Dr. Richard C. Norris, in the Chair.

A Consideration of Fibroid Tumors of the Uterus Based Upon a Series of Cases Treated Surgically.—Dr. J. Clarence Webster, of Chicago, read this paper (by invitation). In 210 cases of fibromyoma of the uterus the following degenerations were present:

	Cases.
Calcareous	2
Cystic	13
Edematous	6
Myomatous	4
Suppurating	10
Adenocarcinoma of cervix	1
Sarcoma	2
Hemorrhagic	3
Necrosis	11
	52

Pelvic complications were noted as follows:

Broad ligament development	11
Prolapsus uteri	7
Retroversion of uterus	11
Hematosalpinx	6
Ovarian cystomata	12
Unilateral salpingo-ovaritis	7
Bilateral salpingo-ovaritis	42
Unilateral ovaritis	3
Bilateral ovaritis	29
Hernia	4
Appendicitis	26
Pregnancy	6
	164

In the above list the frequency of diseases of the appendages must be noted. In 99 instances there were pathological changes in the tubes and ovaries. The association of malignancy was noted only in two cases. In two there was sarcoma of the corpus uteri, the fibroid growths; in a third, early adenocarcinoma of the cervix was present. Cardiovascular symptoms were present in about 25 of the cases. It is possible that cardiac hypertrophy may sometimes result when the tumor is only of moderate size. A question of considerable interest is that relating to the influence which may be exerted by products of the uterine growth on the heart and other organs through the medium of the circulation. Renal disturbances are more common in association with fibroids than is generally believed. In about 30 per cent. of my cases there was noted one or more of the following conditions, viz., Deficient amount of urine or urea, albumin, casts, edema of the feet. In no instance was there evidence of previous organic renal disease, nor did treatment fail to bring about marked improvement prior to operation. Attention is directed to Noble's

views concerning the influence of degenerations and complications of fibroid tumors in influencing morbidity and mortality. The majority of writers have undoubtedly underestimated their influence. The widely held views as to the comparative harmlessness of uterine fibroids must be greatly modified. Taking into consideration the pressure effects, the tumor degenerations, the pelvic and abdominal complications, the changes in the heart, large vessels, kidneys and liver, the chronic anemia of hemorrhagic cases, and other occasional associations, *e.g.*, suppuration, gangrene, peritonitis, phlebitis, embolism, the influence of pregnancy and labor, the new growth must be considered as seriously increasing morbidity and mortality in women in whom they occur. The view held by some that all fibroids of the uterus should be removed surgically unless there is some marked contraindication to operation, is not upheld. All large or growing tumors or small ones which cause troublesome or serious symptoms should be treated surgically. In attempting to establish indications for surgical treatment, various factors must be considered. Thus, the site of the growth may indicate early removal of a tumor, *e.g.*, a submucous polypoidal fibroid, a cervical growth, one developing extra-peritoneally, a subperitoneal tumor tending to fall within the pelvic cavity, etc. The nature of the tumor may afford an indication, *e.g.*, rapid growth, cystic change, necrobiosis or infection, malignancy, association with pregnancy.. The size and number of the tumors within a somewhat ill-defined limit are considered by many authorities as secondary to the other factors in determining surgical interference. One pedunculated subserous tumor, by falling below the pelvic brim, might cause serious pressure symptoms which might never be found with multiple sessile growths. Fibroids should never be allowed to reach a large size, that is, to become palpable abdominal swellings. The nature of the associated complications may often afford the indication for surgical measures. It is due to his special study of these complications that Noble has so strongly advised early operation in fibroid diseases of the uterus. In regard to the choice of surgical procedure, ligation of the uterine arteries has scarcely any place in treatment. Removal of the uterine appendages should only be carried out in the rare cases in which other procedures are inadvisable, on account of the patient's general condition, or when the relationships of the tumor are such as to make removal impossible. Myomectomy has been less practised than it should have been in recent years, owing to the brilliant results obtained in the reduction of the death rate following total extirpation and supravaginal amputation of the uterus. The conservative procedure was carried out by the author 48 times in the 210 cases. He thinks more attention should be given to this operation by gynecologists. Supravaginal amputation has been practised in preference to total extirpation as a routine operation, because it may usually be performed in a somewhat shorter time. There is less hemorrhage; the anatomical relationships of the pelvic floor are better preserved; there is less risk of wounding the ureters.

Owing to recent studies of the complications of fibroids, a serious objection has been raised to the performance of this operation, *i.e.*, the occasional association of fibromyoma and malignant disease. From this standpoint, it must be concluded that total extirpation of the whole uterus is the most scientific procedure.

Dr. Ellice McDonald, of Albany, N. Y., thanked the society for discussing his paper, presented some months ago, and regretted his absence; listened with much interest to Dr. Webster's paper. The subject of fibroids is still a very open question. The subject of malignant degeneration, particularly for the last year or two, has attracted very great attention. It does seem that a certain percentage of fibroids are prone to degenerate into sarcoma. Dr. McDonald does not think the question is entirely settled as to whether a fibroid may degenerate directly into a sarcoma, or whether the sarcoma is grafted on to the fibroid. Since the paper of Whitridge Williams, of Baltimore, published in the *Journal of Obstetrics* some years ago, the greater number of gynecologists and pathologists have been turning to the idea of a fibroid being degenerated directly into a sarcoma. This is of great importance, not only to the gynecologist and pathologist, but to the embryologist. It will no doubt be finally accepted by the embryologists, who will be the last to accept the idea, because it is contrary to all their theories. It does seem that while carcinoma of the cervix is not more common in fibroid than in ordinary run of cases, that adenocarcinoma of the fundus is a little more common in diseased conditions of the fundus or with multiple fibroids than in the ordinary run of cases. The question of tubal complications is one of the most important in regard to fibroids, because upon the presence or absence of these complications must depend our choice of operation. If it is true, as has been pointed out, that the ovaries are diseased in a great number of these cases, and if it is true, or if it is only a coincident, that cystic degeneration of the ovary is more common in fibroid disease of the uterus than in other tumors, it is a question whether the ovaries should be left with the presence or cystic disease eradicated. One of the most important studies is for some one to give some true idea of the conditions of the surgical menopause. If the surgical menopause is as severe as has been taught; if it is a condition that passes off, or is a permanent one lasting for a term of years, should patients be subjected to this long convalescence? This is a question not yet satisfactorily worked out. Winter, in a recent article has made a few scattered observations, but no definite study of the condition. In regard to the question of cardiovascular disease, Dr. McDonald's 14 post mortems the findings correspond with Dr. Webster's, but in three cases there was cardiovascular disease associated with a fibroid disease of the uterus. In one case there was aortic valvular disease; in one case brown atrophy of the heart and in the third there was mitral disease. The question of the predisposition of the various races is a very interesting one, and should form the basis of all studies of fibroids because, before the mortality and morbidity is studied one should have some knowledge of the percentage of occurrence.

Comparisons.—In Dr. McDonald's paper, which was read before the Society last winter, he found from post-mortem records mainly in women of Dutch extraction that one woman in every seven in the upper part of the State of New York had a fibroid. One knows the predisposition of the negro race to fibroids and it is borne out by experience. In his service at the Lying-in Hospital in the City of New York for the last six months in a large obstetrical service, he has had the staff men pay particular attention to the presence of fibroids, letting the author know when they were found. In a service of 2,570 cases in six months, fibroids were found thirteen times, a percentage of less than one-half of one per cent. This may be taken as a fairly good estimate of the status of fibroids in women in the East Side of New York, and as a fairly good percentage of the frequency of fibroids.

In three of these cases there were post-mortem hemorrhages, and this seemed to be invidious. The fibroids were all of the interstitial va-

riety. In two cases the uterus contracted well, but in one there was alarming hemorrhage. In three cases radical extraction of the membrane was necessary and immediate packing. In three cases there was malposition of the uterus, two of which were curetted. In five cases there were some pathological lesions of the placenta. In all cases in which there was some alteration in the placenta it was adherent to the fibroid. There was a large area of necrosis which seemed in one case to be a calcareous degeneration of the placenta, but when one considers the frequency with which this occurs, Dr. McDonald thinks the fibroid had nothing to do with it. While there were thirteen cases of fibroids, one case came to Cæsarean section. In obstetrical cases there is this tendency to post-mortem hemorrhage in all fibroids situated in the uterine wall. One case of pedunculated fibroid aborted at three months. Root says there is abortion in 21 per cent. of all fibroids. He has not eliminated the cases of gonorrheal infection. In the recent paper of Winter he treats the question of mortality from the standpoint of the various operations. In hysterectomy by the vagina, his mortality is 2½ per cent.; in abdominal operation 4.6 per cent.; in the conservative operation five per cent., and in the conservative abdominal operation nine per cent. This bears out what I have said and what Dr. Clark and Dr. Cullen laid particular stress upon at a recent meeting in regard to the danger of doing myomectomy where you have disease of the tubes or kidneys. One must look not only on direct disease of the tubes when pus is present, but on disease of the tubes of any sort as being potential sites of infection. Miller, of Washington, found streptococci in adhesions ten years after operation. He would not say that one gets infection from adhesions in every case, but must look upon them as potential.

Question of Malignancy.—Dr. E. E. Montgomery said that one realizes that the mere presence of a fibroid growth, from its increased amount of congestion and irritation would of itself tend toward the development of malignant disease. When the frequency with which fibroid growths occur is considered, it does not seem to him that the proportion of malignant infection is sufficiently great to assume the growth is an essential feature in its development. The contraction which takes place in fibroid tissue leads to atrophy and arrest of its circulation, tending to the development of edema. This edema occurs not only in cases in which strangulation has taken place as the result of the twisting of the pedicle of a subserous fibroid, but also in growths in which one finds a tendency to degeneration of the arteries, as shown in associated ovarian hematoma. Dr. Montgomery is inclined to think that the disease of the heart and of other organs is more frequently found in those cases in which the fibroid is of the submucous or interstitial form where the tendency to hemorrhage is marked or characteristic. One can appreciate why a fibroid occupying its position in the pelvis and attaining to any size must affect the kidneys by pressure upon the ureters. As Dr. Webster has said, it is difficult to fix a rule for the time of operation. The mere fact that a woman has a fibroid growth of the subperitoneal variety should not, in Dr. Montgomery's judgment, be an indication for operation; but, when it is evident that these growths are increasing in size, or there is a disturbance of the circulation shown in the increased menstrual flow or irregular menstruation of such a character as to induce blood changes in the patient, operation is indicated. Also cases in which it is evident that degenerate changes are taking place should be considered as indicating operation. He fully agrees with Dr. Webster as to the inefficiency and inadvisability of ligation of the arteries with a view of controlling the growth of the tumor, having himself performed this operation but never looked upon it favorably from the theoretical standpoint. If one cuts off the supply of blood sufficiently to limit the growth, it is a question whether the circulation may not be arrested and so bring about necrotic change in the tumor. He has done myomectomy in a number of instances removing a number of growths from the uterus. The operation appeals to him in women under thirty years in whom it seems undesirable to bring about the cessation of the sexual function. It is an operation, however, which must be followed by a more stormy convalescence than one would find in the ordinary operation of hysterectomy. This can be readily understood, for in the enucleation of a number of single fibroid growths from the uterine wall there is a large amount of tissue of low vitality which will be readily infected and an accumulation of blood in dead spaces from which the patient runs an increased danger. He has a patient under observation at present upon whom he did myomectomy for the removal of a tumor the size of a child's head. The woman was single, about thirty years of age, and he could not resist the inclination to attempt to save the uterus. The tumor was situated more particularly in the anterior wall and projected into the cavity of the uterus. The tumor showed the vessels over the anterior wall of the uterus rather diminished in number and the growth looked pale before an incision was made through it. The tumor was enucleated and the cavity within obliterated as far as possible. This was done by carrying gauze through the cervix and packing the cavity when the uterus closed over it. After operation the surface looked exceedingly pale over the line of suture. The woman had a prolonged convalescence with some elevation of temperature and with discharge of material through the uterus, and finally he made an incision through the induration of the abdominal wall through which necrotic tissue discharged. The patient is convalescing favorably, but has undergone serious danger as a result of the effort to save the uterus. In performing hysterectomy he has for the last four years preferred the panhysterectomy to the supravaginal operation, not only for the reason that occasionally there is a case in which cancer involves the cervix, but because in some cases there has been injury to the cervix. In addition he believes there is a better drainage and less likehood of elevation of temperature, and the convalescence of the patient is more satisfactory where the complete operation is done.

Statistics.—Dr. Barton Cooke Hirst found in his catalogue of cases, classified according to disease, the record of 189 fibroid tumors treated by some form of surgical procedure. Twenty-seven per cent. were treated by myomectomy; sixty per cent. by hysterectomy. Vaginal enucleation, oophorectomy and ligation of the uterine arteries made up the remaining thirteen per cent. He has seen the following degenerations: Three sarcomatous, five cystic, four necrotic, two myomatous and one calcareous. In about fifty per cent. there was some pathological condition of the tubes and ovaries, but it was usually in the shape of old adhesions; occasionally a hydrosalpinx, and very rarely indeed, a pyosalpinx, not in two per cent. of the cases. There was an associated adenocarcinoma of the corpus in one case. The serious degenerations and complications, therefore, amounted to eight-tenths per cent. For the benefit of the profession generally, he should like to have heard something about the palliative treatment of hemorrhage for the time being. He is not yet prepared to admit that every fibroid tumor indicates a radical operation. Personally, he has found that much-

derided and much-despised therapeutic agent, electricity, the most useful treatment. He has had quite an extended experience with it in one way or the other for twelve or fifteen years. The County Medical Society appointed Drs. Goodell, Parvin, Montgomery and himself (Dr. Hirst) a committee to examine cases treated by this method when Apostoli's claims were exciting so much attention, and that committee, if he is not mistaken, has never been discharged, because it had nothing to report. The positive pole of a galvanic current in the uterine cavity 40 to 60 milliampères, will check hemorrhage in suitable cases more surely than any other agent he has tried. There are a number of cases, as the general practitioner knows, which may require nothing else, if the tumor is small in size, is not growing, shows no signs of degeneration or inflammatory complications, is not causing pressure symptoms and exerts no deleterious influence on the general health.

Dr. Charles P. Noble said it has been gratifying to him to find in the literature upon fibroids in the last four years that in the various series of cases studied the conclusions have agreed practically with his own. The chief point for discussion, in his opinion, is with reference to the nature of the indication for treatment—whether fibroids should be treated from the standpoint of symptoms or from that of the life history of these growths. It is his opinion that enough facts are being gathered so that in the future they shall be treated from the standpoint of the life history of the growths, just as ovarian growths rather than from that of symptomatology. Dr. Webster's paper is important and interesting, because his cases have been carefully studied. His deductions are not mere expressions of opinion but the result of actual study of the facts in his series of cases. A remarkable fact was that in 210 cases there was not a single case of adenocarcinoma of the corpus uteri. In the reports of other men this has not been true. In the cases reported by Dr. McDonald, The Johns Hopkins and Dr. Noble there has been excess in occurrence of adenocarcinoma of the corpus uteri; this being so marked as to be the basis for the opinion that fibroid tumors of the uterus is a predisposing cause of adenocarcinoma of the corpus uteri. The next point in comparison with Dr. Noble's cases is with reference to complications in the uterus, and in the appendages. The complications in the appendages were much greater in number than those in my own cases, particularly the inflammatory complications. Whether that means that gonorrhea is much more frequent in Chicago than in Philadelphia is a question. In reference to the total extirpation of the uterus versus supravaginal extirpation, it might be of interest to say that out of approximated 700 hysterectomies, so far as my knowledge goes, there have been two cases of carcinoma of the cervix following supravaginal amputation of the uterus. In one case the condition was doubtless overlooked at the time of operation, as carcinoma of the pelvis developed very promptly. In the other case in which there was supravaginal amputation for inflammatory disease, epithelioma of the cervix developed four or five years later. Therefore, this factor, in Dr. Noble's judgment, does not play a large rôle. He has never been impressed with the belief that myomectomy could play a large rôle in the treatment of fibroids. If guided by his statistics he might be in favor of myomectomy, as he has had but one death and that in a case of sloughing fibroid removed per vaginum, but his results have been good because of care in selecting the patients. He has had the experience of having a number of patients bear children after myomectomy. He thinks the cases should be carefully selected for myomectomy and the desire of the patient should be a factor in the case. He has not been impressed greatly by the literature upon the surgical menopause. It has not been his experience that patients after hysterectomy have been especially troubled with the menopause symptoms; nor has he seen in the considerable number of cases in which he has left an ovary that there has been any difference in sequel, whether the ovaries have been removed or left behind. He thinks it is is one of the fads of the day and that there is very little basis for the fad. In a large percentage of cases the troublesome symptoms are greatly exaggerated.

Dr. John G. Clark said that in discussing such a broad subject as the one which Dr. Webster has so fully covered this evening, it is impossible in a short time to more than touch upon a few of the more salient points. Of these Dr. Clark would speak especially upon the three following: (1) The possibility of a supravaginal hysterectomy, of a malignant involvement of the remaining stump; (2) the benefits of leaving the ovaries behind in cases of fibroid tumors; (3) the effect of fibroid tumors in the production of cardiac disease. Relative to the first point, unquestionably a supravaginal amputation of the uterus is much easier, and in the end, gives more satisfactory result, so far as keeping intact the pelvic floor, than that following panhysterectomy. It goes without saying, therefore, that from the mere anatomical standpoint, it is preferable to leave the cervical stump. On the other hand, the objection which has been offered to the partial operation, because of the dangers of a malignant degeneration in the cervical stump or the recurrence of carcinoma, which possibly may have been a coincident part of the fibroid, but overlooked, is a strong one. However, in the event of carcinoma being present in an early stage in the fundus, its extension to the cervix is practically always by continuity along the line of the mucous membrane. Therefore, he is sure that one will obviate the dangers of a maligant degeneration of the stump by a thorough cauterization either with the Paquelin or electric cautery of the cervical canal. This leaves only the rim of the cervix behind, but does not break the attachment of the broad ligaments on either side. With this precaution one may safely advocate the retention of the cervical stump. Concerning the second point, the retention of the ovaries in order to render the surgical menopause less acute, he has very strong impressions. For ten years he has followed the fixed policy of leaving behind the ovaries in every case of fibroid tumor where it was possible, and has been astonished to find that this can be done in a large proportion of cases. When one takes into consideration that the pathologic reports bearing upon the association of ovarian disease with fibroid tumors largely consist of various degrees of inflammatory lesions, he believes one is justified, even when there are adhesions, in leaving behind all or a portion of one or both ovaries; for in a considerable proportion of these inflammatory cases adhesions are not due to infection but to traumatism produced by rubbing of the tumor against the ovary or crowding the ovary in against the pelvic wall, or downward into Douglas's cul-de-sac. Therefore, he is sure if this is relieved by the removal of the tumor that the ovary will not subsequently give any serious trouble. As yet he has not made a careful post-operative study of these cases relative to the question of the surgical menopause, but has had so many of them tell him that they were almost free of the distressing sequelæ of which other patients so many times complain, that he is strongly persuaded that this is the better policy to pursue. Dr. Noble looks upon this phase of the myoma question as a passing fad, and believes it cuts little or no figure in ameliorating the symptoms of which these patients so

many times complain. Relative to the third point, the cardiac changes so frequently spoken of as a complication and sequel of fibroid tumors, he is of the impression, from the study of a large series of cases that for soem reason this complication is less frequent in this country than in Germany. The German gynecologists seem to be greatly impressed with the frequency of the so-called "myoma heart," and warn their students especially against the dangers of sudden death incident to heart disease following hysterectomy for fibroid tumors. Whether there is a distinct influence exercised by a fibroid tumor in producing heart trouble Dr. Clark was unable to say, but he cannot conceive of any more radical disturbance being caused than that of a heart overworked in pumping blood through the resistant tumor mass. In a short experience in Prague he saw two fatal instances of pulmonary embolus, one of which was diagnosticated as death from a "fibroid heart." In both cases autopsy showed that the heart was not at fault, but that an embolus had been detached from the seat of operation and had blocked up the pulmonary vessels, thus producing death. Therefore, in neither of these cases of sudden death could the action of the heart be called in question. A pulmonary embolus is much more likely to be a sequel of a hysterectomy for fibroid tumor than almost any other pelvic operation, because the impaction of the tumor in the pelvis or its pressure upon the large vessels at the brim of the pelvis is very likely to weaken their walls and cause more or less dilatation. Not only may these vesels be the seat of a thrombus, but the greatly enlarged ovarian and uterine veins may also be the seat of large thrombi, from which emboli may be dislodged and carried to the lungs. Therefore, he is inclined to think that sudden death following hysterectomy is more frequently due to a pulmonary embolus than to cardiac disease per se.

Dr. W. Easterly Ashton thought that every case of fibroid must rest upon its own merit, and that in determining the line of treatment each case must be specially studied. One should take into consideration (1) The mortality of major operations on uterine fibroid; (2) the danger of degenerations occurring, and (3) the social condition of the patient. The true mortality of hysterectomy is probably from five to eight per cent., and when a woman comes to a surgeon seeking relief from a fibroid tumor, it is a serious matter whether or not to advise operation, because a mortality of eight per cent. is not to be lightly considered. On the other hand, he believes that the social condition of the patient is also to be considered. Women in the lower walks of life who are obliged to labor for their living cannot endure the symptoms produced by the disease as well as women with plenty of money. So in the former class it may be necessary on account of the symptoms to resort to operation.

If a tumor is causing but little trouble, with no pressure symptoms and the patient is in fairly good condition, he does not advise an operation. Under these circumstances the patient should be seen frequently, and if the tumor begins to grow, an operation should be advised without saying that it is taking on this or that degeneration. The operation of myomectomy has a very limited field and he agrees with Dr. Montgomery that it is dangerous. Dr. Ashton has done but few operations of that class, because it never appealed to him. He believes if he were to adopt the operation he would have a large mortality, as the spaces are not well filled up and the tissues so bruised that a bad focus for infection is left. In reference to panhysterectomy compared with supravaginal operation, he believes that in all classes, except where infection or malignancy exists, the supravaginal operation is the one of selection. Panhysterectomy shortens the vagina, the marital relations are interfered with and has a higher mortality.

Dr. Webster, in closing, said he was glad to be able to bring this subject before the Society because he has realized the important work that has been done in this Society in regard to fibroids. It was certainly Dr. Noble's work which made him study his cases carefully, and he believes that a great many others have been started on the right lines through his initiative. He thinks that in this country in the last few years the obstetrician has been carried away by the brilliancy of those who have perfected the major operations. He quite agrees with the remarks which have been made concerning the risks of performing myomectomy under certain conditions, and in his paper he tried to point out the limitations which had guided him. He excluded infective conditions of the mucosa of the uterus. He does not think one should fear the danger of closing the myomectomy incision with continuous catgut. He has never used any other method. He particularly stated that he did not think myomectomy should be performed where very large incisions are necesary or where much mutiliation of the uterus is necessary. In his myomectomy cases he has rarely required to open the mucosa or to make very large incisions; in other words, the tumors have not been large. One speaker suggested that it would not be wise to perform myomectomy where there were many tumors. Dr. Webster agreed with him. In the two cases quoted by him in which pregnancy took place, he was particularly requested to perform myomectomy. In one case six tumors were removed by the abdominal method, and, in the other, twelve or thirteen. Both were doctors' wives and pregnancy happened to follow at a later date. In neither of these cases were all the fibroids removed from the uterus. A number of very small ones were left untouched. He does not see why there should be a larger mortality after abdominal myomectomy in selected cases, than there should be after supravaginal amputation or total extirpation. He has felt in reading Richelot's paper in which he advocates total extirpation instead of a supravaginal amputation on account of the occasional occurrence of malignancy in the cervix after the latter operation, that he is exaggerating the importance of the latter condition. Dr. Webster thinks that Dr. Noble's statistics are far more important, as he has stated in his paper, in indicating the performance of the complete operation for the occurrence of adenocarcinoma in the body of the fibrous uterus.

BOOKS RECEIVED.

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Gall-Stones and their Medical Treatment. By Dr. B. G. A. Moynihan. 8vo, 386 pages Illustrated. W. B. Saunders & Co, Philadelphia, New York and London.

Diseases of the Liver, Gall-Bladder and Bile Duct. By Dr. H. D. Rolleston. 8vo, 794 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

Essentials of Medical Chemistry. By Dr. L. Wolf. Revised by Dr. A. F. Witmer. 12mo, 226 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.